MTNC040522A1

B19

Service Manual

HDTV MONITOR

Simplified

PT-47X54J / PT-53TW54J

GN1P

This simplified service manual is issued to add listed model to the main service manual order No. MTNC040520C1(PT-53X54J). A parts list and schematics are included in this simplified service manual. Please file and use this simplified service manualtogether with the main service manual order No. MTNC040520C1(PT-53X54J).

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IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by ⚠ in the Schematic Diagrams, Circuit Board Diagrams, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permission of manufacturer.

1. Safety precautions

General guidelines

An isolation transformer should always be used during the servicing of a receiver whose chassis is not isolated from AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injuryfrom electrical shocks. It will also protect the receiver from being damaged by accidental shorting that may occur during servicing.

When servicing, observe the original lead dress, especially in the high voltage circuit. Replace all damaged parts (also parts that show signs of overheating.)

Always replace protective devices, such as fish paper, isolation resistors and capacitors, and shields after servicing the receiver. Use only manufacturer’s recommended rating for fuses, circuits breakers, etc.

High potentials are present when this receiver is operating. Operation of the receiver without the rear cover introduces danger for electrical shock. Servicing should not be performed by anyone who is not thoroughly familiar with the necessary precautionswhen servicing high voltage equipment.

Extreme care should be practiced when handling the picture tube. Rough handling may cause it to implode due to atmospheric pressure. (14.7 lbs per sq. in.). Do not nick or scratch the glass or subject it to any undue pressure. When handling, usesafety goggles and heavy gloves for protection. Discharge the picture tube by shorting the anode to chassis ground (not to the cabinet or to other mounting hardware). When discharging connect cold ground (i.e. dag ground lead) to the anode with a wellinsulated wire or use a grounding probe.Avoid prolonged exposure at close range to unshielded areas of the picture tube to prevent exposure to x ray radiation.

The test picture tube used for servicing the chassis at the bench should incorporate safety glass and magnetic shielding. The safety glass provide shielding for the tube viewing area against x ray radiation as well as implosion. The magnetic shieldlimits the x ray radiation around the bell of the picture tube in addition to the restricting magnetic effects. When using a picture tube test jig for service, ensure that the jig is capable of handling 50kV without causing x ray radiation.

Before returning a serviced receiver to the owner, the service technician must thoroughly test the unit to ensure that is completely safe to operate. Do not use a line isolation transformer when testing.

Leakage current cold check

Unplug the A.C. cord and connect a jumper between the two plug prongs.Measure the resistance between the jumpered AC plug and expose metallic parts such as screwheads, antenna

terminals, control shafts, etc. If the exposed metallic part has a returnpath to the chassis, the reading should be between 240k Ω and 5.2M Ω . If the exposed metallic part does not have a return path to the chassis, the reading should be infinite.

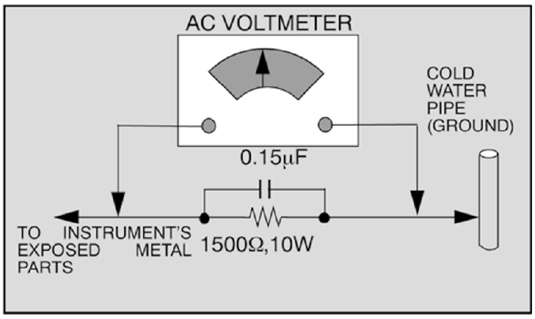
Leakage current hot check

Plug the AC cord directly into the AC outlet. Do not use an isolation transformer during the check. Connect a 1.5k Ω 10 watt resistor in parallel with a 0.15 μ F capacitor between an exposed metallic part and ground. Use earth ground, for example a water pipe.

Using a DVM with a 1000 ohms/volt sensitivity or higher, measure the AC potential across the resistor.

Repeat the procedure and measure the voltage present with all other exposed metallic parts. Verify that any potential does not exceed 0.75 volt RMS. A leakage current tester (such a Simpson model 229, Sencore model PR57 or equivalent) may be used in the above procedure, in which case any current measure must not exceed 0.5 milliampere.If any measurement is out of the specified limits, there is a possibility of a shock hazard and the receiver must be repaired and rechecked before it is returned to the customer.

Hot check circuit



Insulation test

Connect an insulation tester between an exposed metallic part and A.C. line. Apply 1080VAC/ 60Hz for 1 second. Confirm that the current measurement is 0.5mA ~ 2.0mA. Repeat test with other metallic exposed parts.

X-ray radiation

WARNING

The potential source of x-ray radiation in the PTV set is in the high voltage section and the picture tube.

NOTE

It is important to use an accurate, calibrated high voltage meter.

Apply all black video signals (1080i) and confirm high voltage measures 31.5 ± 1.0kV. If the high voltage is not within the range, change C514 (in D-Board) to 1800pF, 2000pF, 2400pF or 2700pF until the desired value isobtained.Apply NTSC white pattern and confirm the high voltage

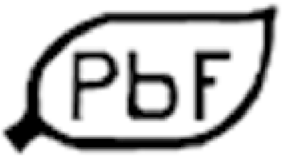
measures 30.1 ± 1.5kV. Apply HD 1080i white pattern and confirm the high voltage measures 30.1 ± 1.5kV.

2. About lead free solder (PbF)

NOTE

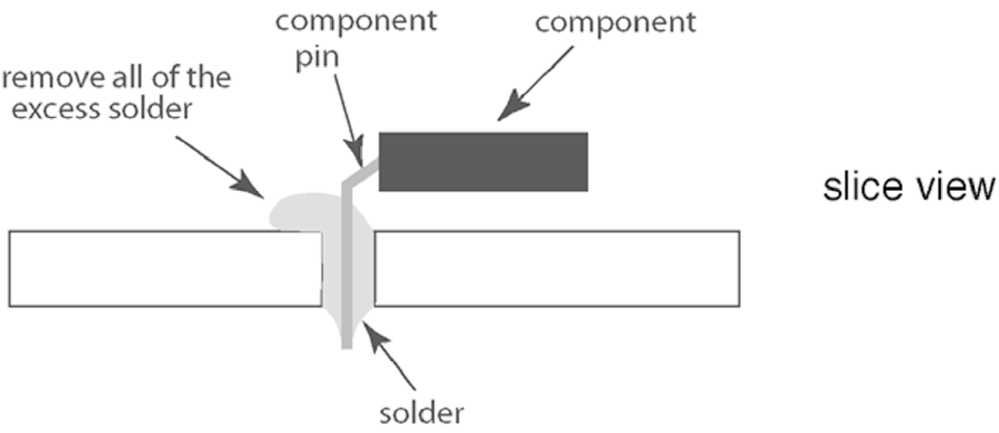
Lead is listed as (Pb) in the periodic table of elements. / In the information below, Pb will refer to lead solder, and PbF will refer to Lead Free Solder. / The lead free solder used in our manufacturing process and discussed below is (Sn+Ag+Cu). / Thatis Tin (Sn), Silver (Ag) and Copper (Cu) although other types are available.

This model uses Pb Free solder in it’s manufacture due to environmental conservation issues. For / service and repair work, we’d suggest the use of Pb free solder as well, although Pb solder may be / used. / PCBs manufacturedusing lead free solder will have the “PbF” or a leaf symbol stamped on the / back of PCB.



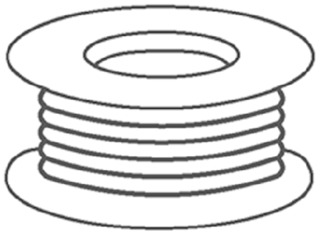
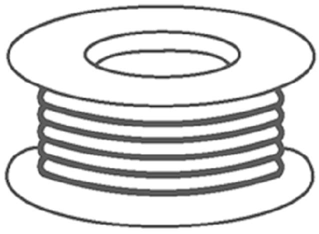
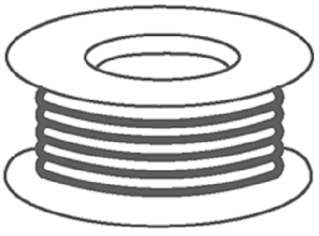
CAUTION

- Pb free solder has a higher melting point than standard solder. Typically the melting point is 50 ~ 70 °F (30 ~ 40 °C) higher. Please use a high temperature soldering iron and set it to 700 ± 20 °F (370 ± 10 °C).
- Pb free solder will tend to splash when heated too high (about 1100 °F or 600 °C). / If you must use Pb solder, please completely remove all of the Pb free solder on the pins or solder area before applying Pb solder. If thisis not practical, be sure to heat the Pb free solder until it melts, before applying Pb solder.
- After applying PbF solder to double layered boards, please check the component side for excess solder which may flow onto the opposite side.


component pin
component
remove all of the excess solder
slice view
solder

Suggested Pb free solder

There are several kinds of Pb free solder available for purchase. This product uses Sn+Ag+Cu (tin, silver, copper) solder. However, Sn+Cu (tin, copper), Sn+Zn+Bi (tin, zinc, bismuth) solder can also beused.

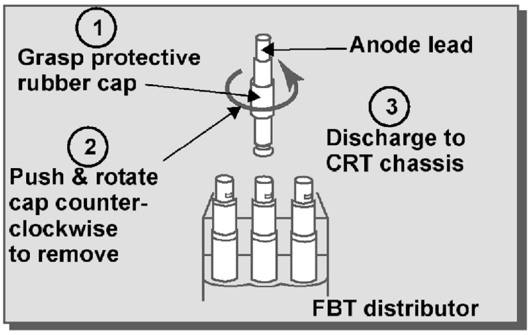
0.3mm X 100g	0.6mm X 100g	1.0mm X 100g
		

3. Important safety tests

Measuring H.V.

The anode caps are cemented to the CRTs. To gain access for high voltage measurement, remove the red CRT's anode lead from the flyback transformer distributor. Grasp the anode lead protective cap at its bottom and squeeze it against thelocking cap body inside, rotate 1/4 turn counter clockwise and pull the anode lead sleeve out of the FBT distributor. Connect a high voltage positive lead from your H.V. meter to the FBT distributor, and the common negative lead to cold ground

FBT leads removal


①
Grasp protective rubber cap
Anode lead
③
Discharge to CRT chassis
②
Push & rotate cap counter-clockwise to remove
FBT distributor

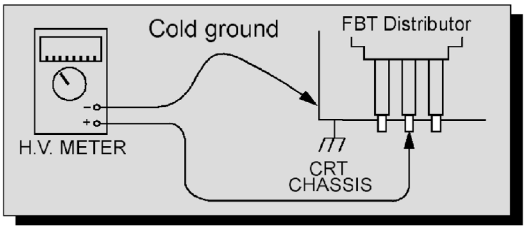
Note:
Reinsert the anode lead into the FBT distributor until it is tightly and fully seated. Turn the locking cap clockwise to lock in place.

(EHT) Protector operation check
With the cabinet back removed, apply a nominal 120V A.C. to the PTV.

Over voltage test
Preparation:

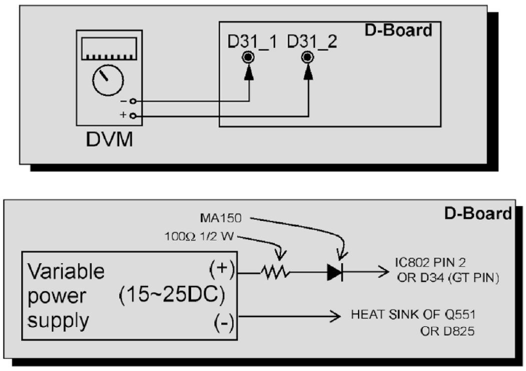
1. **Turn PTV “OFF”**
2. **Connect a NTSC signal generator to the antenna terminal.**
3. **Connect DVM positive lead to D31 pin 2 and negative lead to D31 pin 1 on D-Board**

H.V. measurement


Cold ground
FBT Distributor
H.V. METER
CRT
CHASSIS

4. **Connect a H.V. meter (static type, class 0.1) with high voltage leads to high voltage distributor on FBT.**

DVM and power supply connection


D31_1
D31_2
D-Board
DVM
MA150
100Ω 1/2 W
D-Board
Variable power supply
(+)
(15~25DC)
(-)
IC802 PIN 2 OR D34 (GT PIN)
HEAT SINK OF Q551 OR D825

5. **Connect the 15 ~ 25 V DC variable power supply positive lead to D34 or IC802 pin 2 (D Board) and negative lead to heat sink of Q551 or D825**

Procedures:

1. **Apply a NTSC white pattern.**

2. **Turn PTV ON.**
3. **Adjust the picture or brightness controls so that the DVM reads 12.7 ± 0.4 volts.**
4. **Increase the variable power supply until set turns off. The set should turn off at 12.7 ± 0.4 volts (DVM) and high voltage less than 36.4kV.**
5. **If the DVM reading is other than 12.7 ± 0.4 volts, readjust picture or brightness control and repeat steps 3.**
6. **Turn off the variable supply and confirm that the set will turn on by pulling out AC plug socket and connecting it again.**

4. Service notes

NOTE

These components are affixed with glue. Be careful not to break or damage any foil under the component or at the pins of the ICs when removing. Usually applying heat to the component for a short time while twisting with tweezers will break the component loose.

Leadless chip component (surface mount)

Chip components must be replaced with identical chips due to critical foil track spacing. There are no holes in the board to mount standard transistors or diodes. Some chips capacitor or resistor board solder pads may have holes through the board,however the hole diameter limits standard resistor replacement to 1/8 watt. Standard capacitor may also be limited for the same reason. It is recommended that identical components be used.

Chip resistor have a three digit numerical resistance code, 1st and 2nd significant digits and a multiplier. Example: 162 = 1600 or 1.6k Ω resistor, 0 = 0 Ω (jumper).

Chip capacitors generally do not have the value indicated on the capacitor. The color of the component indicates the general range of the capacitance.

Chip transistors are identified by a two letter code. The first letter indicates the type and the second letter, the grade of transistor.

Chip diodes have a two letter identification code as per the code chart and are a dual diode pack with either common anode or common cathode. Check the parts list for correct diode number.

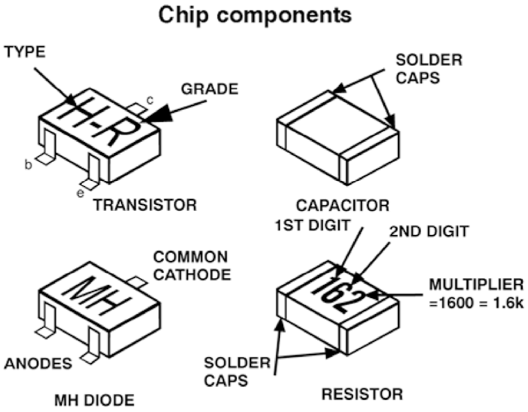
Component removal

1. **Use solder wick to remove solder from component end caps or terminal.**

2. Without pulling up, carefully twist the component with tweezers to break the adhesive.
3. Do not reuse removed leadless or chip components since they are subject to stress fracture during removal.

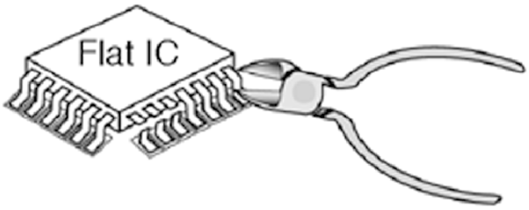
Chip component installation

1. Put a small amount of solder on the board soldering pads.
2. Hold the chip component against the soldering pads with tweezers or with a miniature alligator clip and apply heat to the pad area with a 30 watt iron until solder flows. Do not apply heat for more than 3 seconds.

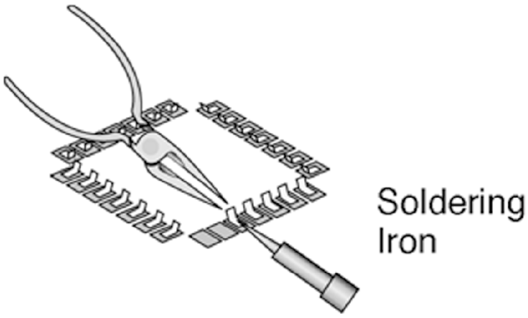

Chip components
TYPE
GRADE
c
H-R
b
e
TRANSISTOR
SOLDER CAPS
CAPACITOR
1ST DIGIT
2ND DIGIT
COMMON CATHODE
MH
162
MULTIPLIER =1600 = 1.6k
ANODES
SOLDER CAPS
MH DIODE
RESISTOR

How to replace flat ic (required tools)

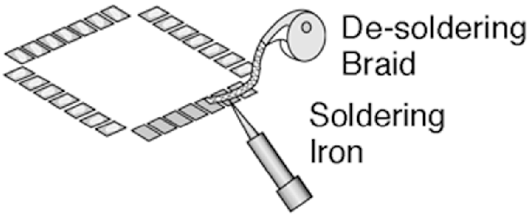
1. Remove the solder from all of the pins of a Flat IC by using a desolder braid



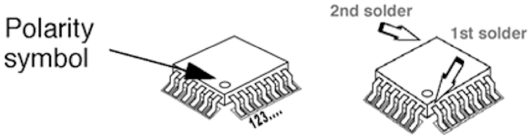
2. Put the iron wire under the pins of the Flat IC and pull it in the direction indicated while heating the pins using a soldering iron. A small awl can be used instead of the iron wire.


Soldering
Iron

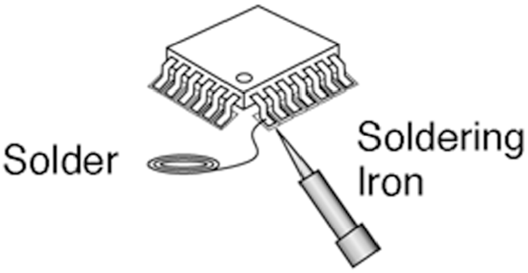
3. **Remove the solder from all the pads of the Flat IC by using a de solder braid**


De-soldering
Braid
Soldering
Iron

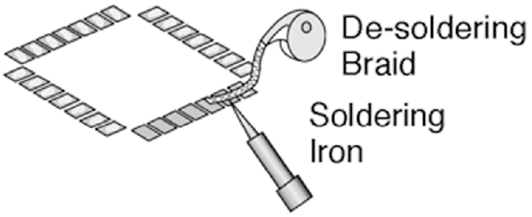
4. **Position the new Flat IC in place (apply the pins of the Flat IC to the soldering pads where the pins need to be soldered). Properly determine the positions of the soldering pads and pins by correctly aligning the polarity symbol**


Polarity
symbol
123....
2nd solder
1st solder

5. **Solder all pins to the soldering pads using a fine tipped soldering iron**


Solder
Soldering
Iron

6. **Check with a magnifier for solder bridge between the pins or for dry joint between pins and soldering pads. To remove a solder bridge, use a de solder braid as shown in the figure below**



IMPORTANT

To protect against possible damage to the solid state devices due to arcing or static discharge, make certain that all ground wires are securely connected

CAUTION

The power supply circuit is above earth ground and the chassis cannot be polarized. Use an isolation transformer when servicing the receiver to avoid damage to the test equipment or to the chassis. Connect the test equipment to the proper ground(HOT or COLD) when servicing, or incorrect voltages will be measured.

WARNING

This receiver has been designed to meet or exceed applicable safety and x-ray radiation protection as specified by government agencies and independent testing laboratories.

To maintain original product safety design standards relative to x-ray radiation and shock and fire hazard, parts indicated with the symbol ⚠ on the schematic must be replaced with identical parts. Order parts from the manufacturer'sparts center using the parts numbers shown in this service manual, or provide the chassis number and the part reference number.

For optimum performance and reliability, all other parts should be replaced with components of identical specification.

5. PTV Location of controls

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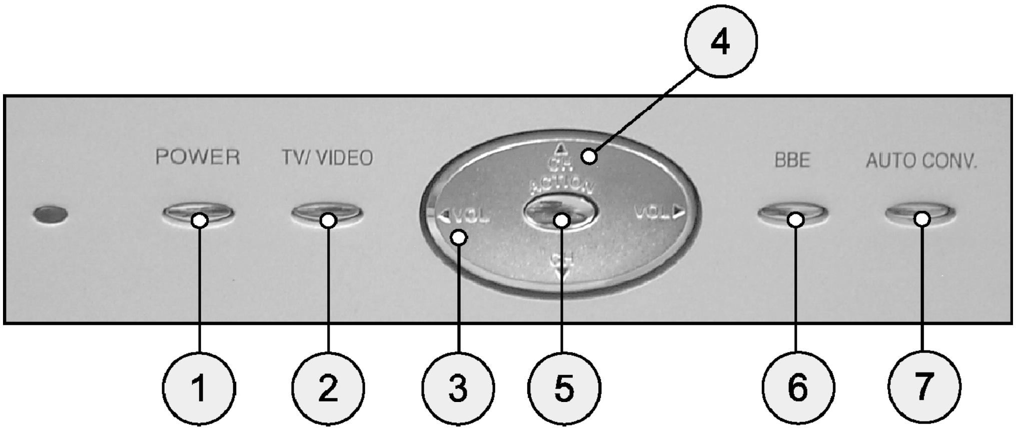
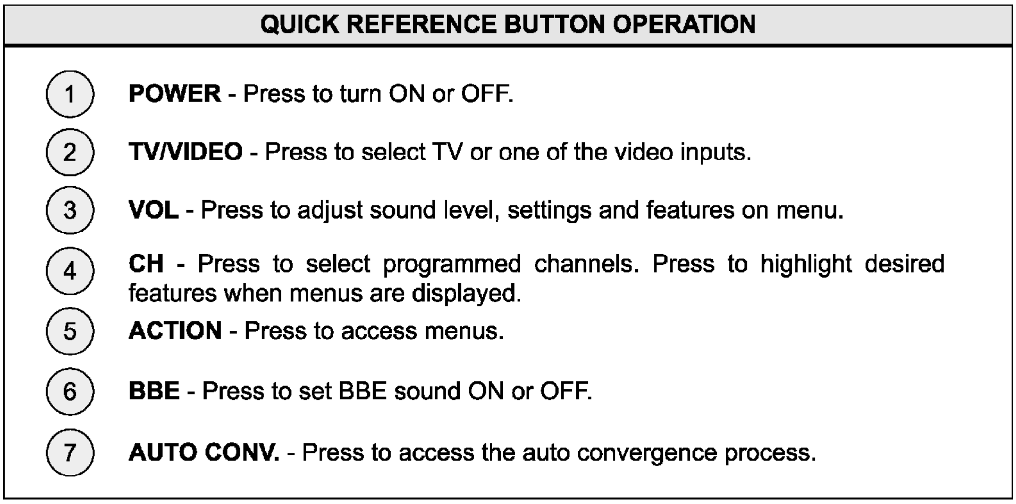

POWER
TV/ VIDEO
CH
ACTION
VOL
VOL
CH
BBE
AUTO CONV.
4
1
2
3
5
6
7



QUICK REFERENCE BUTTON OPERATION

① **POWER** - Press to turn ON or OFF.

② **TV/VIDEO** - Press to select TV or one of the video inputs.

③ **VOL** - Press to adjust sound level, settings and features on menu.

④ **CH** - Press to select programmed channels. Press to highlight desired features when menus are displayed.

⑤ **ACTION** - Press to access menus.

⑥ **BBE** - Press to set BBE sound ON or OFF.

⑦ **AUTO CONV.** - Press to access the auto convergence process.

6. Receiver feature table

FEATURE/MODEL	PT-47X54J	PT-53TW54J
CHASSIS	AP832	BP832
MICRO	256K	
MENU LANGUAGE	ENGLISH / SPANISH / FRENCH	
CLOSED CAPTION	X	
V-CHIP (USA/CANADA)	X	
CHANNEL INFO BANNER	X	
VIDEO INPUT SKIP	SKIP	
CHANNEL COUNT	181	
PIP (1T), 2T PIP (2T), 2T SPLIT	2T SPLIT	
REMOTE CONTROL (W/LIGHT)	EUR7603ZF0	
CRT SUPPLIER	MDDA (CENTAUR IV)	
SCREEN	W/PROT SCREEN	ARS PROT SCREEN
CHASSIS	GN1P	
COMB FILTER	MOTION ADP, 3D Y/C	
HEC/VEC (X=BOTH)	X	
NEW YNR	X	
VM	X (SELECTABLE)	
V/A NORM (X=BOTH)	X	
COLOR TEMP	X	
AUTO CONVERGENCE	X	
AIP	X	
PRESET/INPUT LABELING	X	
VIDEO PICTURE MEMORY	X	
DIGITAL SCAN RATE	1080i, 540p	
NTSC LINE DOUBLER	540p PROGRESSIVE	
MTS/SAP/DBX	X	
BUILT-IN AUDIO POWER	15W x 2 (10%)	30W x 2 (10%)
No. OF SPEAKERS	4	6

FEATURE/MODEL	PT-47X54J	PT-53TW54J
BASS/BALANCE/TREBLE CONTROL	X	
AI SOUND	X	
SURROUND	X	
SPATIALIZER/BBE	BBE	BBE/VIVA
A/V IN (REAR/FRONT)	4(3/1)	
A/V PROGRAM OUT	X	
AUDIO OUT (FAO: F, VAO:V)	F,V	
COMPONENT INPUT (Y, Pb, Pr)	2	
S-VIDEO INPUT (REAR/FRONT)	2/1	
HDMI/HDCP INPUT	X	

Note:
Specifications are subject to change without notice or obligation.

7. Board description table

Board Description for PT-47X54J models.

BOARD	PART NUMBER	DESCRIPTION
A-BOARD	TNP2AH058	MAIN CHASSIS
D-BOARD	TNP2AH059	POWER SUPPLY
CD-BOARD	TNP2AA166	AUTO CONVERGENCE SENSOR
* DC-BOARD	TNP2AA163	CONVERGENCE PROCESSING
* DG-BOARD	TNP2AA173AE	MPU, VIDEO SIGNAL PROCESSIN
G-BOARD	TNP2AA164	FRONT A/V INPUT
H-BOARD	TNP2AA174AD	REAR A/V INPUTS
K-BOARD	TNP2AA165	KEYBOARD PANEL
LB-BOARD	TNP2AA161	BLUE PRT
LG-BOARD	TNP2AA160	GREEN PRT
LR-BOARD	TNP2AA162	RED PRT
R-BOARD	TNPA0615AB	IR SENSOR

Board Description for PT-53TW54J models.

BOARD	PART NUMBER	DESCRIPTION
A-BOARD	TNP2AH058AC	MAIN CHASSIS
D-BOARD	TNP2AH059	POWER SUPPLY
CD-BOARD	TNP2AA166	AUTO CONVERGENCE SENSOR
* DC-BOARD	TNP2AA163	CONVERGENCE PROCESSING
* DG-BOARD	TNP2AA173AE	MPU, VIDEO SIGNAL PROCESSIN
G-BOARD	TNP2AA158	FRONT A/V INPUT
H-BOARD	TNP2AA174AF	REAR A/V INPUTS
K-BOARD	TNP2AA159	KEYBOARD PANEL
LB-BOARD	TNP2AA161	BLUE PRT
LG-BOARD	TNP2AA160	GREEN PRT
LR-BOARD	TNP2AA162	RED PRT
R-BOARD	TNPA0615AB	IR SENSOR

NOTE
When ordering a replacement board assembly, append an “S” to the board number

EXAMPLE
To order D-Board, the replacement board is TNP2AH059S

*

DC-Board and DG-Board are non-serviceable boards, except for the connector JK5001 in DG-Board. If any of these boards are defective, replace it with a new one.

8. Auto diagnosis feature

These receivers incorporate a self diagnosis feature. With this feature it will be easier for the technician to detect failures. There is a LED located by the keyboard on the front panel, this LED will start flashing when SOS is detected by thecircuits located in specific areas, depending on how many times the LED is flashing, this will indicate what circuit should be checked. Make a count of flashing and see the table shown below. Please use this feature effectively especially for intermittentproblems.

# OF FLASHES	POSSIBLE CAUSE
1	140V OVER VOLTAGE / OVER CURRENTOR VERTICAL
2	LOW DC
3	CONVERGENCE
4	SUB9V
5	HHS
6	IC4001
7	IC4201
8	IC4401

Note:

Flash only indicate a hint on a possible circuit failure and must not be used as a specific component diagnostic, (i.e. for IC4001 all related circuitry must be checked).

8.1. SOS History Check

When a certain SOS event is triggered by a malfunction on the receiver, the MPU stores on EEPROM the last SOS events occurred.

To check SOS history, self check procedure must be performed by pressing ACTION and POWER buttons on the receiver's keypad (3 seconds). The self check display appears showing the SOS sign with the last shutdown malfunction event(s) ocurred.

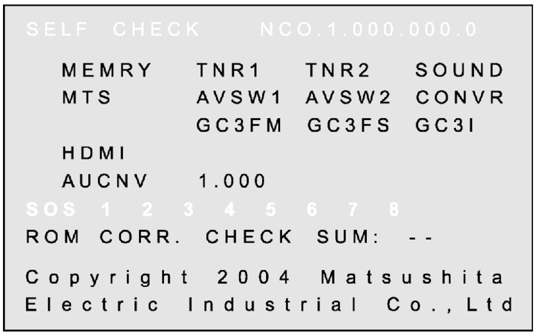
Note:

If two or more SOS events caused the receiver's shutdown, all of the shutdown event will be shown at the time of displaying self check screen.

IMPORTANT:

At this moment the SOS history is cleared from EEPROM, so if self check is performed again the SOS number events won't be displayed on-screen unless SOS is triggered again.

Self Check screen.



```
SELF CHECK     NCO.1.000.000.0

   MEMRY    TNR1    TNR2    SOUND
   MTS      AVSW1   AVSW2   CONVR
            GC3FM   GC3FS   GC3I
   HDMI
   AUCNV    1.000
SOS  1  2  3  4  5  6  7  8
ROM CORR. CHECK SUM:  --

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Electric Industrial Co.,Ltd
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9. EEPROM copy jig

This PTV has a feature that allows to clone convergence from main EEPROM data adjustments from a PTV to other by connecting a jig to the PTV set, or can be used to back-up data before making adjustments. A jig part number TXFJIG01SER, is availablethrough Matsushita/Panasonic Services.

Preparation:

To connect this jig, remove the lower back cover as instructed on disassembly for service section on this service manual and insert the jig into A15 connector located on A-Board. (See figure).

Procedure to copy data:

1. Enter to service mode and display service menu (see service

mode section).

2. Select “AREA” DAC and then press ACTION button on remote to enter. Press VOL right/left to select one of the following options then press ACTION:

   - Select ALL to copy all main EEPROM data
   - Select ADJ to copy only adjustment data.
   - Select FIX to copy only fix data

3. To copy data from main EEPROM to jig, select “IN → EX” DAC and press ACTION button on remote. The register background will momentarily become yellow indicating that copy is in progress.
4. To copy data from jig to main EEPROM, select “EX → IN” DAC and press ACTION button on remote. The register background will momentarily become yellow indicating that copy is in progress.

Procedure to copy convergence:

1. Enter to service mode and display service menu
2. Select “FINE” DAC and press ACTION on remote.
3. Press “8” on remote.
4. Select from and then press ACTION on remote:

   - INT to copy data from internal EEPROM to jig
   - EXT to copy from jig to internal EEPROM.

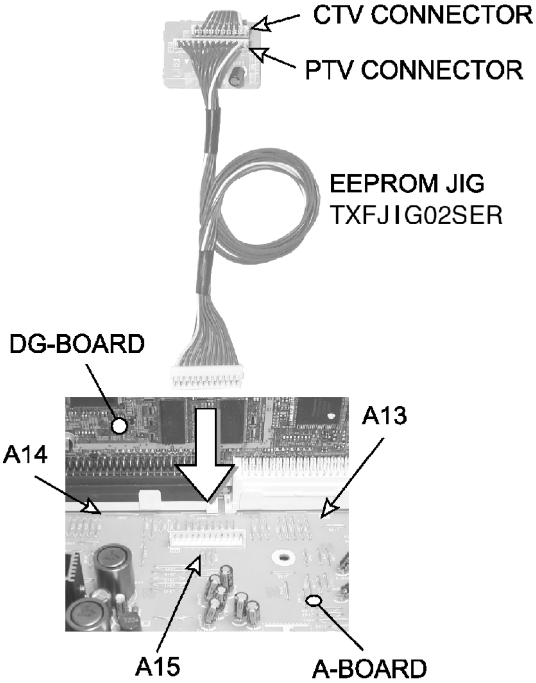
5. Select an option from the menu with CH keys and confirm with ACTION:

   - DEFAULT:default factory preset
   - CURRENT:to copy the current (receiver data or jig data) convergence adjustments to memory.
   - NOT USE: to back up data.
   - ALL: to copy all data.

   NOTE:
   The stated as default factory preset contain the factory DATA; Use this option when data was lost or when adjustment is lost completely.

6. **Select destination to copy (INT or EXT) and confirm with ACTION.**
7. **Once an option is selected the copy process begins.**
8. **To exit “FINE” register press POWER and select “YES” option with ACTION. When the AUTO OFFSET process end, shut off the receiver.**
9. **Remove the copy jig from A15.**

EEPROM copy jig connection

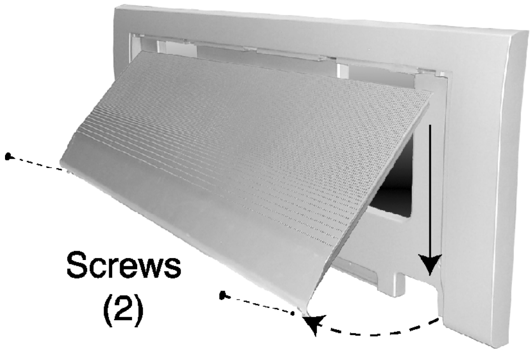


10. Disassembly for service PT-47X54J models.

NOTE:
Board ground wires may have to be disconnected to disassemble some boards. All ground wires must be reconnected using jumper leads, if necessary, before power is applied to PTV for service.

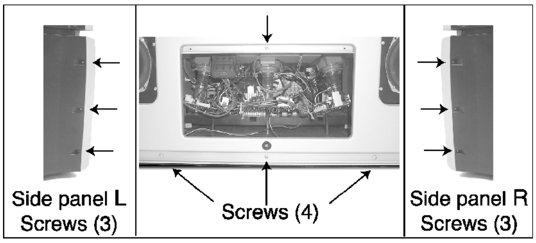
Speaker grille removal
Speaker grille, is secured to the cabinet of the PTV with 1 velcro dot and 2 screws at the bottom. Take the screws out and grip panel from the bottom, pull slightly backward and at the same time pull down to uncouple the 4 tabs. When reassembling,make certain to firmly press on the panel where the velcro dot is and that the four tabs are properly inserted in the front cover.

Speaker grill removal



Front cover replacement

1. **Remove the speaker grille.**
2. **Remove the cabinet front board by removing the 2 screws in the middle section.**
3. **Remove the screws from the middle section (4) of the front panel and both side panels (3 in each side from the back, see picture).**

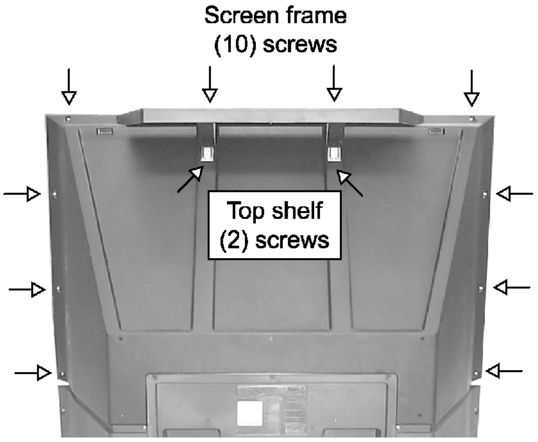


4. **Pull the front panel from the bottom slightly downwards to unlock the tabs and remove.**

Screen frame removal

1. **First, remove the front panel.**
2. **Below the screen, remove the 5 screws from the tabs, just below the front A/V inputs.**
3. **Remove the 10 screws from the back cover. At this point the top shelf must be removed from the back cover (2 screws).Be careful when removing the screen frame, try removing the screws from the sides first and leave the top screws at last, besure to hold the frame when removing the last screws.**

Screen frame removal (back view)



4. Tilt the assembly forward while lifting it out of place.

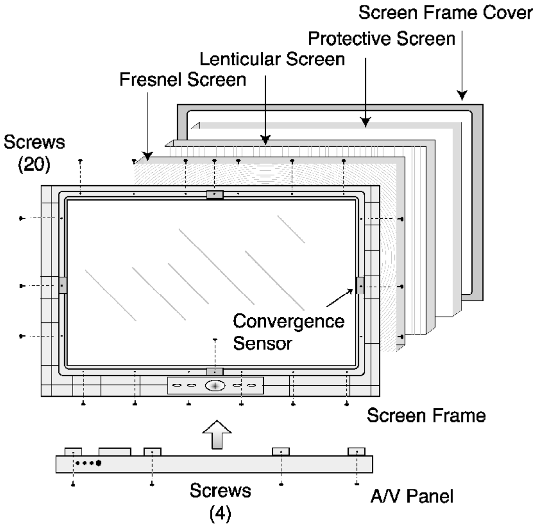
   CAUTION:

   At this point the keyboard, A/V inputs and convergence sensors, must be disconnected from K-board and G-board, otherwise the cables and connectors could get damaged.

Screen assembly

1. Remove the screen frame. See screen frame removal procedure above.
2. Place screen frame face down on a soft surface.
3. If necessary remove G-board and/or K-board.
4. If necessary disassemble A/V panel removing the screws (4) and tilt the panel upwards and release it from screen frame.
5. Remove the screws from the screen frame (20), be careful not to damage the convergence sensors (see picture).

Screen assembly (Inside view)


Screen Frame Cover
Protective Screen
Lenticular Screen
Fresnel Screen
Screws
(20)
Convergence
Sensor
Screen Frame
Screws
(4)
A/V Panel

6. **Carefuly lift screen frame leaving the screen frame cover with the 3 screens (Fresnel, Lenticular, Protective) on top of it.**

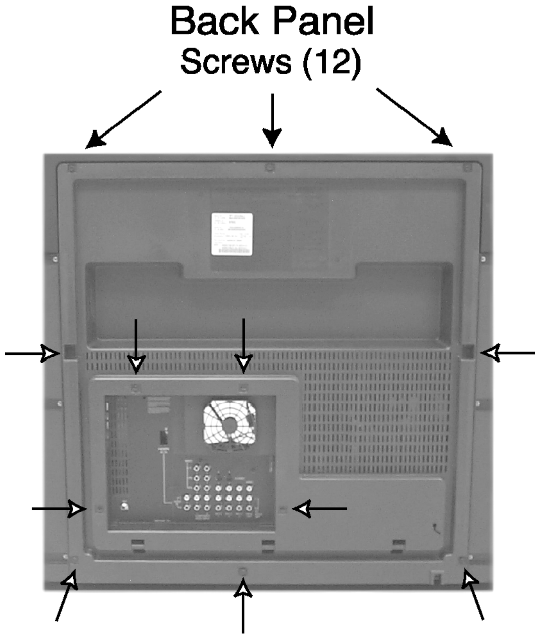
Keyboard and front A/V inputs removal

1. **Unplug the connectors from keyboard and front A/V inputs assemblies. Remove the screws affixing the keyboard (4 screws) and front A/V inputs (3 screws) and tilt the A/V panel assembly upward and release it fromthe screen frame.**

Back panel removal

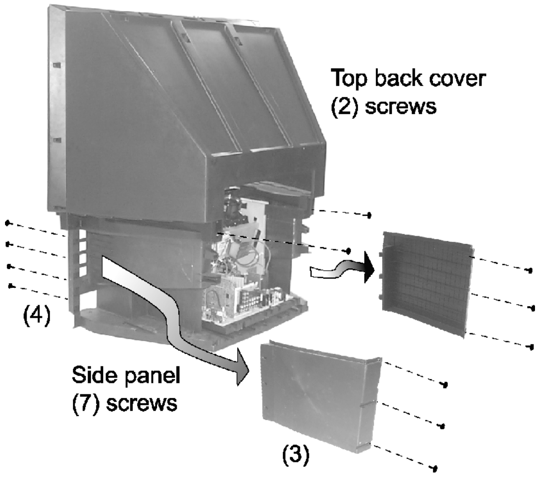
1. **The back panel is fastened to the cabinet by 12 screws. See picture for screw location.**

Back panel removal


Back Panel
Screws (12)

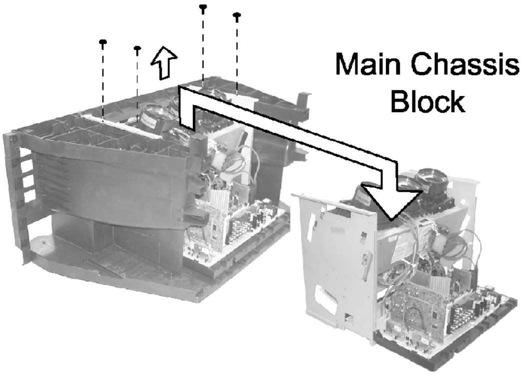
Main chassis block

1. **After removing the screen frame and front cover, remove the side panel from each side (each side panel is fastened by 7 screws, 4 at front and 3 in the back).**


Top back cover
(2) screws
(4)
Side panel
(7) screws
(3)

2. **Remove the 2 screws from the cabinet body that holds the upper cabinet cover and carefully remove it.**
3. **The main chassis block is secured to the main body cabinet by 4 screws on the top (see picture).**

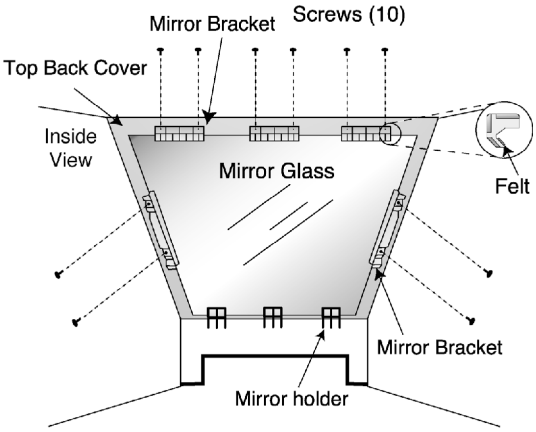
Chassis removal


Main Chassis
Block

Mirror removal

The mirror is attached inside the cabinet cover. Carefully remove the cabinet cover to access its interior surface and remove the screws securing the brackets that hold the mirror at the top and sides to the mirror.

Mirror Removal (Inside View)


Mirror Bracket
Screws (10)
Top Back Cover
Inside
View
Mirror Glass
Felt
Mirror Bracket
Mirror holder

10.1. Chassis assembly

The chassis assembly shown in figure includes all the electrical and optical components (light box).

Chassis back view

A/V BACK COVER ASSEMBLY
This assembly is secured to H-Board by 8 screws.

H-Board

1. **H-Board is connected to DG-board with H1 connector.**
2. **Pull carefully to the right to disconnect.**

DG-Board

1. **Plugs onto A-Board at A13 and A14 connectors (DG3 and DG4 respectively).**
2. **Remove plug cables from connectors DG5 and DG6.**

NOTE:
This board is non-serviceable. / When removing this board pull carefully.

A-Board

1. **A-Board is secured to the chassis tray with six screws.**
2. **The A-Board is mated to D-Board by four flexible connectors (male side of connectors): A1, A2, A3 & A4. To remove this board, unplug the connectors of A-Board pulling from the sides of each connector.**

NOTE:

Some tie wraps that secure the wire dressings may need to be unfastened for chassis removal.

3. **Remove plug connector in A6 that goes to G-Board (G1).**
4. **Remove plug connectors in A7, A8 that goes to K-board (K1) and R -board (R1).**

D-Board

1. **D-Board is secured to the chassis tray with five screws.**
2. **The D-Board is mated to A-Board by four connectors (female side of connectors): D1, D2, D3 & D4. To remove this board, unplug the connectors on the A-Board pulling from the sides of each connector.**

NOTE:
Some tie-wraps that secure the wire dressings may need to be unfastened for chassis removal.

DC-Board

1. **Plugs onto the D-Board at the D21, D22 and D23 (DC1, DC2 and DC3 respectively) connectors.**

NOTE:
This board is non-serviceable. / When removing this board pull carefully.

R-Board

1. **This board is secured to the upper front side of the light box by one screw, and plugged to R1 connector from A7 on A-Board.**

LR, LG and LB Board

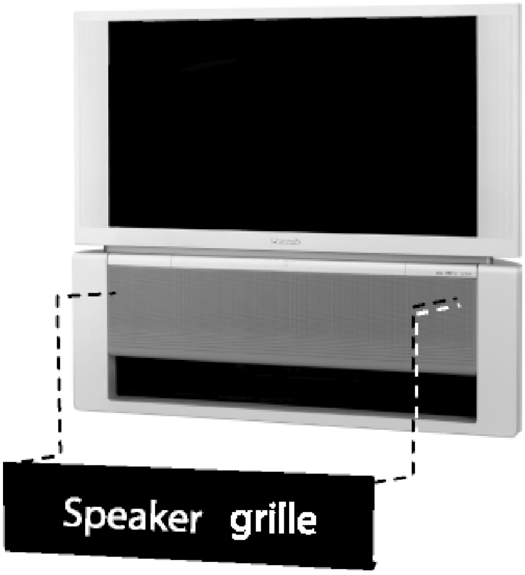
1. **Each board is plugged into the socket on the PRT neck, LR-Board on red PRT, LG-Board on green PRT and LB-Board on blue PRT.**

10.2. Dissasembly for service PT-53TW54J

NOTE:
Board ground wires may have to be disconnected to disassemble some boards. All ground wires must be reconnected using jumper leads, if necessary, before power is applied to PTV for service.

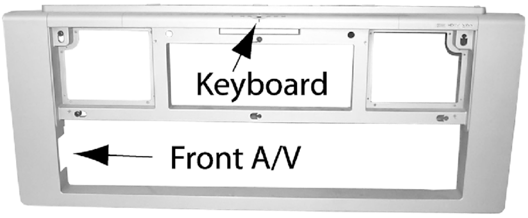
Speaker grille removal
Speaker grille, is secured to the cabinet of the PTV with 6 rubber holders. Grip panel from the sides and middle upper part, and gently pull forward to remove. When reassembling, make certain to firmly press on the panel where the insertion points(6) are located, one at each corner and at the center (top & bottom).

Speaker grille removal



Keyboard, and front A/V inputs removal

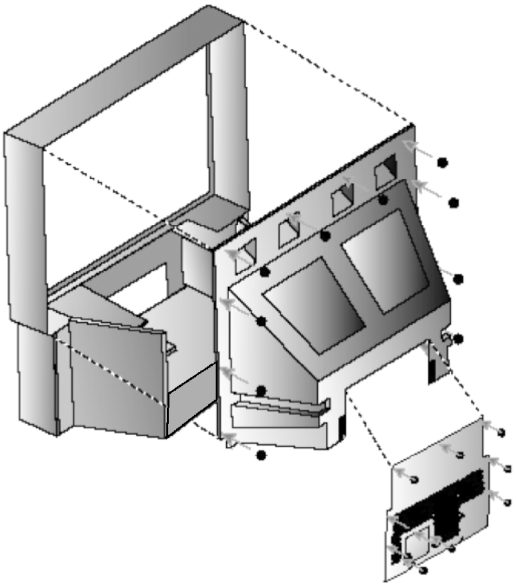
1. **Remove the speaker grille.**
2. **Remove the screws around the woofers. Unplug the connectors from keyboard, and front A/V inputs. Remove the screws (2) affixing the keyboard (top) and front A/V inputs (lower side) from the front panel frame and pull the assemblyupward and release it from the front cabinet carefully.**



Back lower cover removal

1. **Remove (7) hex screws around the perimeter, marked with arrows. See figure for screws location.**
2. **Remove (9) screws from around the A/V terminal board (marked with arrows).**

Back lower cabinet removal



Back cabinet removal

1. **Remove the back lower cover. (Detailed previously).**
2. **The top back cover (plastic shell) is secured with (10) screws around its perimeter. See figure for screws location.**
3. **Be careful not to damage the mirror secured to the underside of the back cover.**

Screen frame removal

1. **Disconnect the cables leading to the keyboard, A/V inputs and autoconvergence sensors.**
2. **At this point the front cover is held only by four screws, be careful not to push the cabinet forward.**
3. **Remove screws and tilt the assembly forward while lifting it out of place.**

Speakers replacement

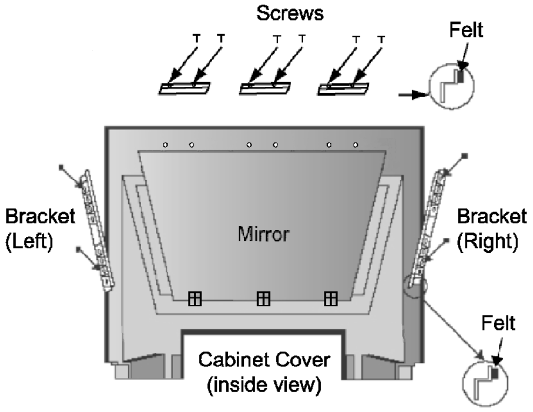
The speaker system of the TW models consist in 3 speakers (tweeter, midrange and a woofer) for each channel (left & right). To replace follow this procedure:

1. **Remove the speaker grille.**
2. **Each woofer is secured to the cabinet with 4 screws.**
3. **Remove the screen frame.**
4. **Each speaker is secured to the screen frame with 2 screws (tweeter) and 4 screws (midrange).**
5. **Disconnect the L and R speaker lead connectors from the speaker units.**

Mirror removal

The mirror is attached inside the back cabinet cover. Carefully remove the cabinet cover to access its interior surface and remove the screws securing the brackets that hold the mirror at the top and sides to the mirror.

Mirror removal

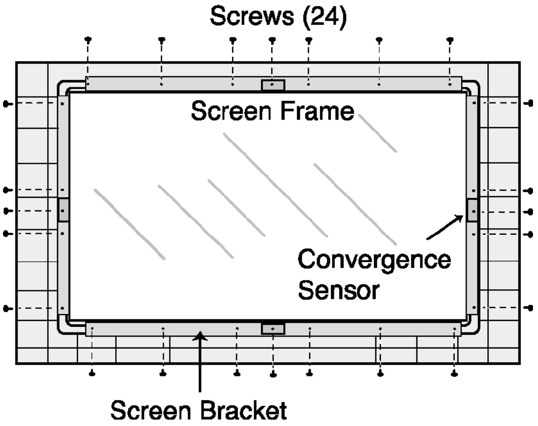


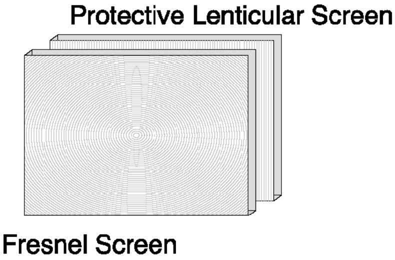
Screen assembly

1. Remove the screen frame. See screen frame removal procedure.
2. Place screen frame face down on a soft surface.
3. Remove all screen brackets and corner brackets

Note:
The brackets are painted black (permanent marker) on the edge to prevent reflection on image.

4. Remove the horizontal barrier panel at the back of the cabinet.


Screws (24)
Screen Frame
Convergence Sensor
Screen Bracket


Protective Lenticular Screen
Fresnel Screen

5. Unplug cables connectors (K1, G1, Autoconvergence and speaker connectors) and pull out the main chassis block.

Note:

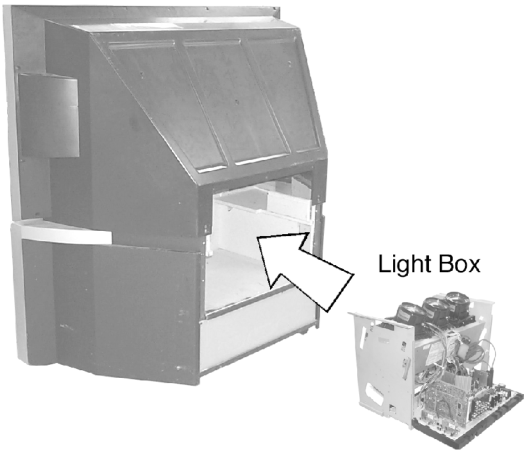
Main chassis block can be serviced either in normal position or laying on its back (protect hookup terminal from damage).

Main chassis block

1. Remove the back lower cabinet cover.

2. The main chassis block is secured to the cabinet by 2 screws at front, behind the Speaker Grill and 3 screws inside on the bottom of the optical frame).
3. Remove the horizontal barrier panel at the back of the cabinet.
4. Unplug cables (K1, G1, Autoconvergence and speaker connectors) and pull out the main chassis block.

Chassis removal



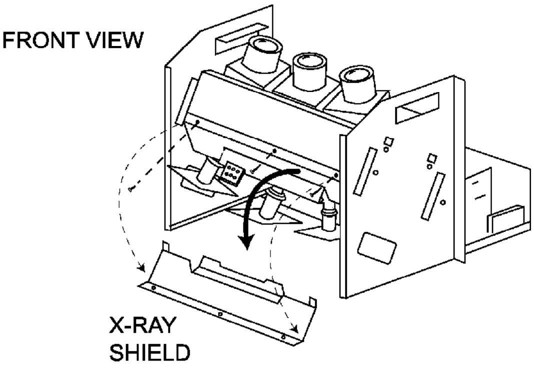
A/V BACK COVER ASSEMBLY
This assembly is secured to H-Board by 8 screws.

10.3. Disassembly for CRT replacement

To facilitate CRT replacement, the complete CRT mounting chassis does not need to be removed.

1. Remove the main chassis block from the cabinet.
2. Remove the optical bracket metal cover (front side x-ray shield) by removing 3 screws on top.

CRT replacement

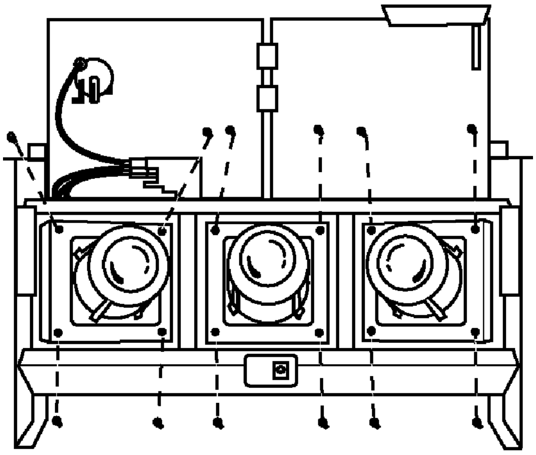


3. **Remove the defective CRT anode lead from the high voltage distributor block that is mounted on the flyback transformer. Discharge to CRT chassis.**
4. **Unplug connectors from D-Board. See board layout. D14 for red, D15 for green and D16 for blue.**
5. **Unplug the defective CRT black DAG ground connector from the CRT Board.**
6. **Remove the CRT Board from the defective CRT neck.**
7. **Remove (4) screws from the defective CRT housing.**

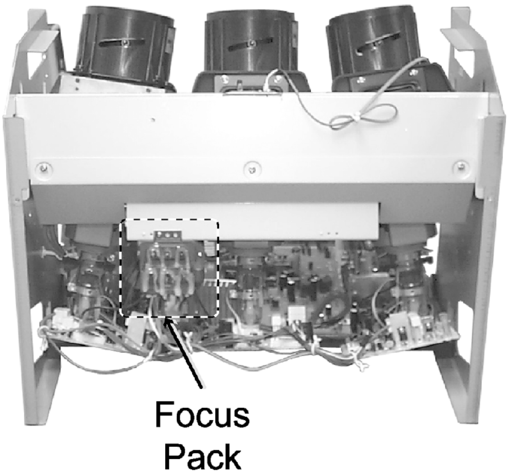
   Caution:

   Do not remove the (4) CRT lens screws. Support the CRT assembly when loosening screws.

CRT replacement



Focus pack location



8. **Release CRT anode lead from CRT chassis wire clamp and all**

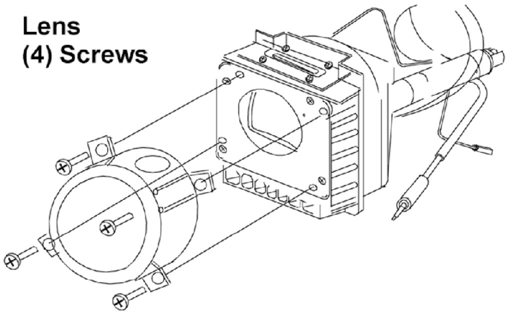
other wires from holders.

9. Loosen a screw that
secures the DY and remove it from the CRT neck.
Caution:
To insure protection against x-ray radiation, the lens must be mounted in place at all times when power is applied to the PTV

CRT replacement

1. Remove CRT focus lens assembly (4 screws)

CRT assembly

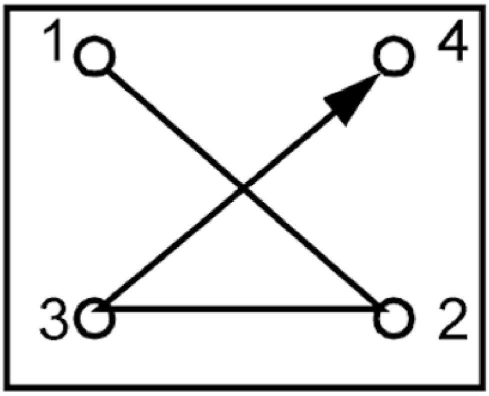


2. Lay CRT face down on a soft cloth.
3. Note position of yoke with centering tabs and remove from defective CRT.
4. Remove CRT DAG ground from defective CRT. Mount it on the replacement CRT exactly as it was on the defective CRT.

Note:
Replacement CRT is supplied with H.V. anode lead attached.

5. Wire the anode lead wire.
6. Install yoke with other CRT neck assemblies on CRT neck in the same order and position as removed from the defective CRT.
7. Press yoke against bell of CRT and tighten the clamp just snug enough so it will not easily shift.
8. Assemble CRT focus lens assembly to new CRT with (4) screws. Make sure focus lens adjustment nut is in the same location as on other CRT focus lens

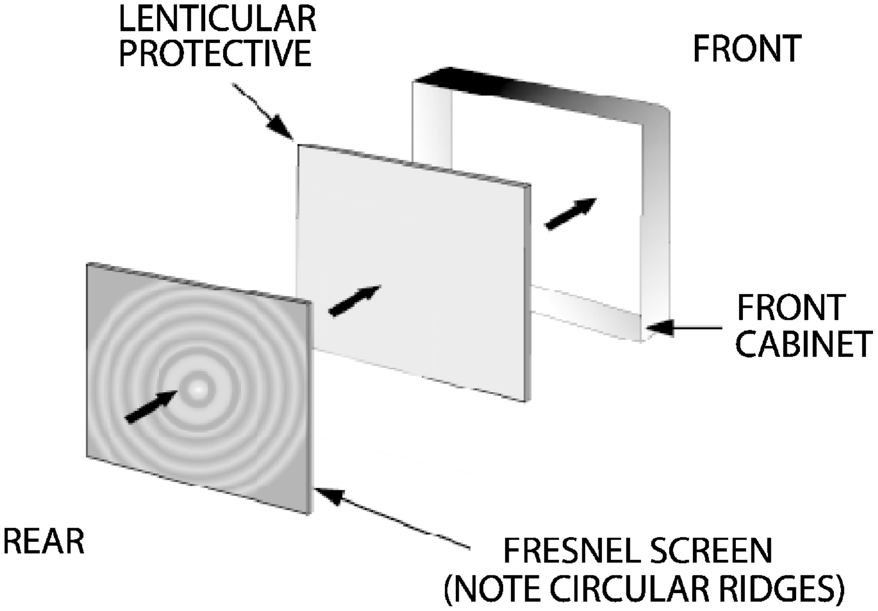
CRT screw tightening order



Note:
Please assemble with screws in the order shown and tighten with the same torque.

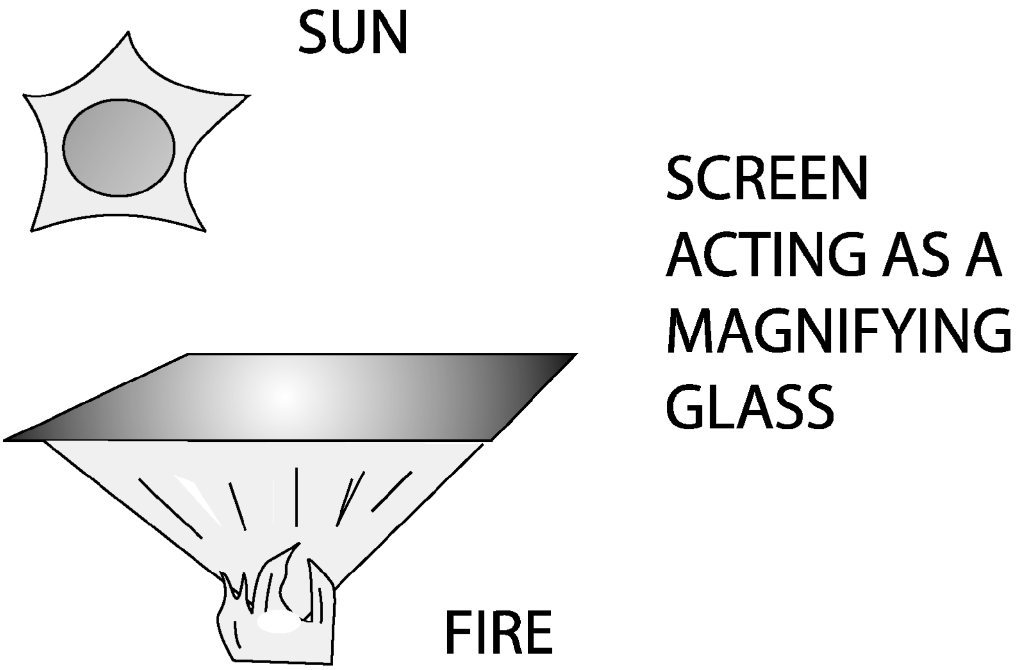
10.4. PT-53TW54J screen assemblies

Screen assemblies


LENTICULAR
PROTECTIVE
FRONT
FRONT
CABINET
REAR
FRESNEL SCREEN
(NOTE CIRCULAR RIDGES)

10.5. Screen assemblies warning

When storing or disposing of screen assemblies, be sure not to place them in direct sunlight. These screens may act as a magnifying glass and could cause a fire.


SUN
SCREEN ACTING AS A MAGNIFYING GLASS
FIRE

10.6. Convergence alignment template

The convergence alignment template is a grid approximately the size of the viewing screen used to ensure the proper size and shape of the alignment rasters. It is 6 blocks across by 6 blocks high. Apply a convergence alignment template to the viewingscreen of the PTV. Make sure the center lines are properly aligned. If a template is not available, one can be created by following the instructions below.Create a convergence alignment template by drawing a pattern, as in the figure, in the actualdimensions on transparent film or tracing paper. Start with the Horizontal and Vertical Center Axis and work outwards until the pattern is complete. Pay attention to the actual dimensions of the pattern.

Template dimensions:

- 47”: 1037mm horizontal x 83.43mm vertical.

- 53”: 1173.3mm horizontal x 660mm vertical.

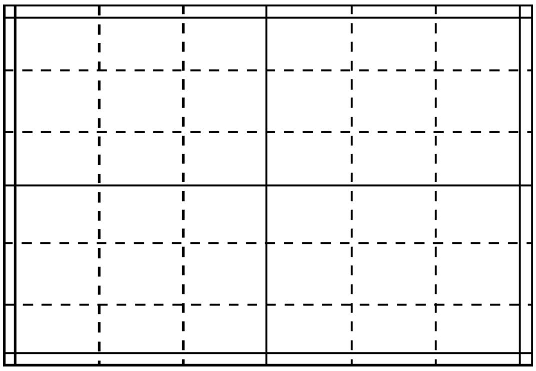
Single grid dimension:

SCREEN SIZE	HORIZONTAL	VERTICAL
47”	167.83mm	83.43mm
53”	189.22 mm	94.29 mm

NOTE:

A convergence alignment template, part number TXFQD01JSER is available through Matsushita/ Panasonic Services

Convergence template.



11. Reference of PDF links color

DESCRIPTION OF PDF LINK COLORS	
TYPE	DESTINATION
SCHEMATIC	
YELLOW ON IC	IC ON PCB
YELLOW ON CONNECTOR	CONNECTOR ON PCB
YELLOW ON SCHEMATIC	PCB
CYAN	WAVEFORM
GREEN ON SIDE	SCHEMATIC CONTINUED
GREEN ON CONNECTOR	CONNECTOR CONNECTION
BLUE ON IC	VOLTAGE
PCB	
BLUE ON IC	IC ON SCHEMATIC
BLUE ON CONNECTOR	CONNECTOR ON SCHEMATIC
BLUE ON PCB	SCHEMATIC
GREEN ON SIDE	PCB CONTINUED
BLOCK DIAGRAMS	
GREEN ON IC	IC ON SCHEMATIC
GREEN ON SIDE	BLOCK DIAGRAM CONTINUED

12. Conductor views

12.1. Printed Circuit Board - A (page 1 of 2)

12.2. Printed Circuit Board - A (page 2 of 2)

12.3. Printed Circuit Boards - G & K

13. Schematic diagrams

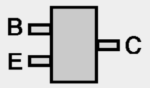
13.1. Schematic diagrams notes

Notes:

IMPORTANT SAFETY NOTICE

THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES THAT ARE IMPORTANT FOR PROTECTION FROM X-RADIATION, FIRE AND ELECTRICAL SHOCK HAZARDS. WHEN SERVICING IT IS ESSENTIAL THAT ONLY MANUFACTURERS SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS DESIGNATED WITH A ⚠ IN THE SCHEMATIC.

CHIP TRANSISTOR LEAD DESIGNATION



SCHEMATIC NOTES

1. Resistors are carbon 1/4W unless noted otherwise.
2. Capacitors are ceramic 50V unless noted otherwise.
3. Coil value notes is inductance in µH.
4. Test point indicated by ● ; Test point but no pin ○.
5. Components indicated with ⚠ are critical parts and replacement should be made with manufacture specified replacement parts only.
6. ▬ (**BOLD LINE**) indicates the route of B+ supply.
7. The schematic diagrams are current at the time of printing and are subject to change without notice.
8. Ground symbol ⏚ indicates **HOT GROUND CONNECTION**; ⏚ indicates COLD GROUND.

NOTE: All other component symbols are used for engineering design purposes.

VOLTAGE MEASUREMENTS

1. Voltage measurement:
   - AC input to the Receiver is 120V. NTSC (HD, 1125i & 525P when applicable) signal generator is connected to the antenna of the Receiver. (Color bar pattern of 100 IRE white and 7.5 IRE black.)
   - All Picture and Audio adjustments are set to Normalize.
     TV ANT/CABLE - (Set-Up Menu) in TV/ANT Mode
     Volume - Min.
     TV/Video SW - TV position
     Audio Mode - Stereo
   - Voltage readings are nominal and may vary ±10% on active devices. Some voltage reading will vary with signal strength and picture content.
   - Supply voltages are nominal.
2. Ground symbol ⏚ indicates ground lead connection of meter.
   Incorrect ground connection will result in erroneous readings.

*CAUTION: **Incorrect ground connection of the test equipment will result in erroneous readings.***

WAVEFORM MEASUREMENTS

1. ③ indicates waveform measurement. (Measurement can be taken at the best accessible location in common to the indicated point.)
2. Taken with an NTSC signal generator connected to the antenna terminal. (NTSC color bar pattern of 8 bars of EIA colors, 100 IRE white and 7.5 IRE black.)
3. Customer Controls (Picture/Audio Menu) are set to Normalize. Volume is set to “MIN”.
4. All video and color waveforms are taken with a wideband scope and a probe with low capacitance (10 to 1). Shape and peak altitudes may vary depending on the type of Oscilloscope used and its settings.
5. Ground symbol ⏚ shown on waveform number indicates (Hot) ground lead connection of the Oscilloscope.

CAUTION: Incorrect ground connection of the test equipment will result in erroneous readings.

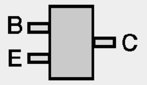
13.2. Notas de los diagramas esquemáticos

Notas

NOTA DE SEGURIDAD

LOS DIAGRAMAS ELÉCTRICOS INCLUYEN CARACTERÍSTICAS ESPECIALES MUY IMPORTANTES PARA LA PROTECCIÓN CONTRA RAYOS-X, QUEMADURAS Y DESCARGAS ELÉCTRICAS. CUANDO SE DE SERVICIO ES IMPORTANTE USAR PARA REEMPLAZO DE COMPONENTES CRITICOS, SOLO PARTES ESPECIFICADAS POR EL FABRICANTES. LOS COMPONENTES CRITICOS ESTAN SEÑALADOS EN LOS DIAGRAMAS POR EL SIMBOLO ⚠.

IDENTIFICACIÓN DE TERMINALES PARA TRANSISTORES EN *CHIP*



NOTAS DE LOS DIAGRAMAS

1. Las Resistencias son de Carbón de 1/4W, a menos que se indique otra característica.
2. Los Capacitores son de Cerámica para 50V, a menos que se indique otra característica.
3. El valor indicado de las Bobinas es la inductancia expresada en μH.
4. Los puntos de prueba en la terminal de algún componente son indicados por ● Los puntos de prueba fuera de los componentes se indican con ○.
5. Los componentes señalados con el símbolo ⚠ son considerados componentes críticos y deben ser reemplazados sólo con las partes especificadas por el fabricante.
6. ▬ (**LINEA GRUESA**) indica las líneas de alimentación de los Voltajes B+.
7. Los diagramas eléctricos están sujetos a cambio sin previo aviso.
8. El símbolo ⏚ indica que es una conexión a **Tierra Caliente** y el símbolo ⊥ indica conexión a **Tierra Fría**.

NOTA:* *Los demas símbolos de componentes incluidos son usados con fines de diseño.

MEDICIÓN DE VOLTAJES

1. Medición de voltaje:
   - El voltaje de entrada al Receptor es de 120V de Corriente Alterna. Un generador de patrones con formato NTSC se conecta a la entrada de la antena. (Patrón de Barras de Colores con 100 IREs para el Blanco y 7.5 IREs para el Negro.)
   - Los ajustes de los Menus Picture y Audio se normalizan.
     En el Menú Set-Up, en la opción ANTENA, se selecciona el modo de CABLE.
     El nivel de Volumen se minimiza.
     De los modos TV y Video, seleccionar el modo TV.
     Seleccionar modo Estereo del Audio.
   - Las mediciones de los voltajes son nominales y pueden variar hasta 10% en componentes en funcionamiento. Las lecturas de los voltajes pueden variar por la potencia de la señal y el contenido de la imagen.
   - Las fuentes de voltajes son nominales.
2. El símbolo ⏚ indica el tipo de tierra que se utiliza en la conexión del medidor.

PRECAUCION: SI no se utiliza la conexión a la tierra adecuada, se obtendrán mediciones equivocadas y podría dañar el equipo de medición.

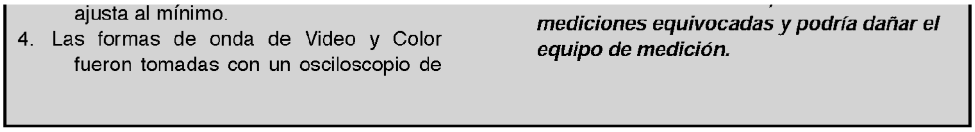
MEDICIÓN DE FORMAS DE ONDA

1. Un símbolo como ③ indica el punto para medir una señal. (La medición puede hacerse en el punto con mayor accesibilidad, siempre que sea común al indicado.)
2. Se midieron utilizando un generador con formato NTSC conectado a la terminal de la antena. (Patrón de 8 Barras de Colores EAI, formato NTSC de 100 IREs para el Blanco y 7.5 IREs para el Negro.)
3. Los ajustes de usuario de los Menus PICTURE y AUDIO se normalizaron. Posteriormente el nivel de volumen se ajusta al mínimo.

banda alta y con un punta de prueba de baja capacitancia (10 a 1). La forma y amplitud de las ondas puede variar según el tipo de osciloscopio que se utilice y sus características.

5. El símbolo de tierra ⏚ que aparece junto al número de la forma de onda, indica que se utiliza conexión a **Tierra Caliente** en el extremo negativo de la punta de prueba.

PRECAUCION: Si no se utiliza la conexión a la tierra adecuada, se obtendrán



ajusta al mínimo.

4. Las formas de onda de Video y Color fueron tomadas con un osciloscopio de

mediciones equivocadas y podría dañar el equipo de medición.

13.3. A-Board schematic (1 of 3)

13.4. A-Board schematic (2 of 3)

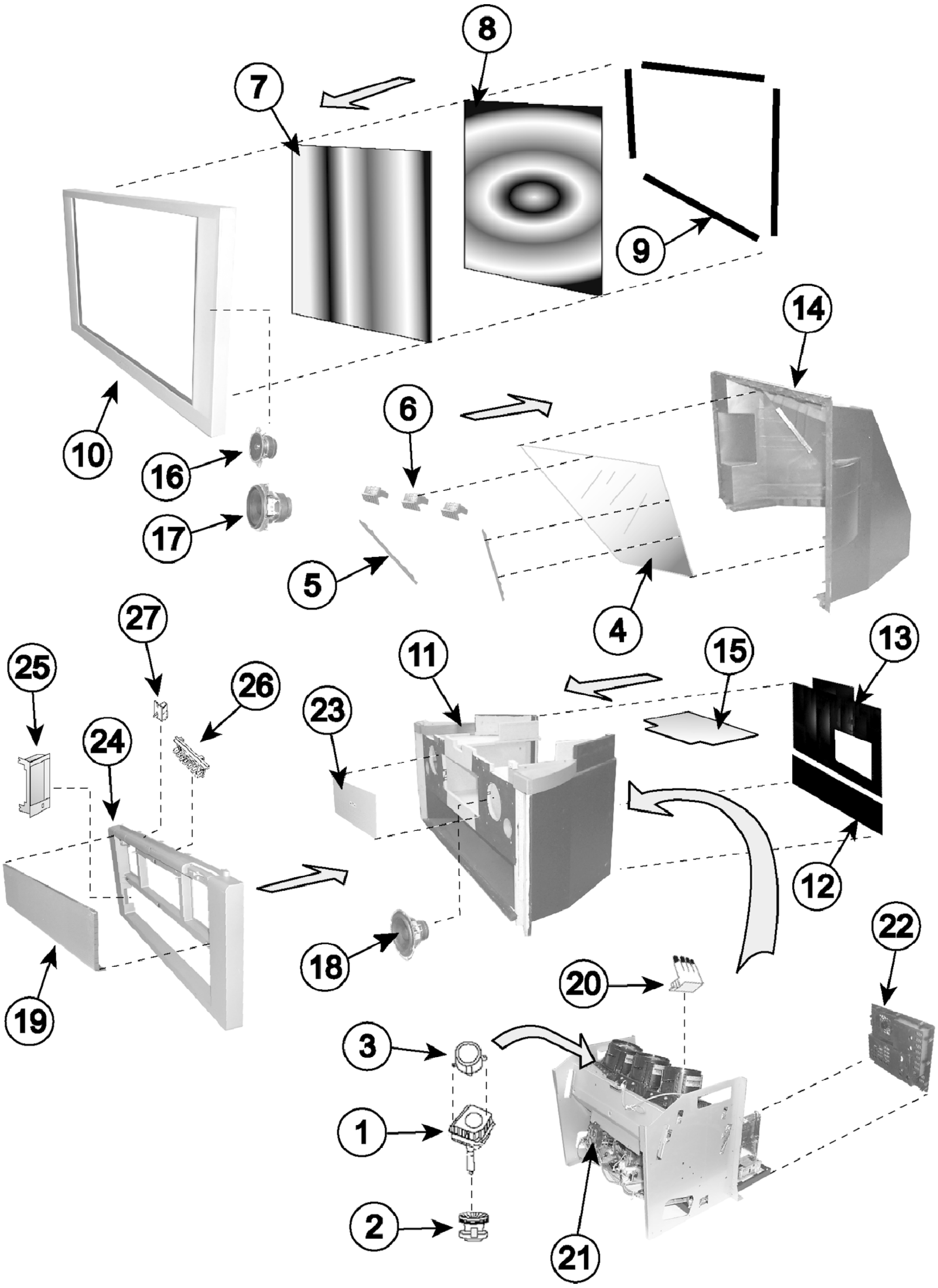
13.5. A-Board schematic (3 of 3)

13.6. G & K Boards schematics

14. Parts location PT-53TW54J

***For PT-47X54J parts location, refer to Main service manual order No.MTNC040520C1**

PT-53TW54J parts location.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15. Parts list

15.1. Description of abbreviations guide

Important Safety Notice

Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use manufacturer's specified parts.

Abbreviation of part name and description

1. Resistor
Example :
ERD25TJ104 **C** 100KΩ, **J**, 1/4W
Type Allowance

Type	Allowance
C : Carbon	F : ± 1%
F : Fuse	G : ± 2%
M : Metal Oxide Metal Film	J : ± 5% K : ± 10%
S : Solid	M : ± 20%
W : Wire Wound	

2. Capacitor
Example :
ECKF1H103ZF **C** 0.01µF, **Z**, 50V
Type Allowance

Type	Allowance
C : Carbon	C : ± 0.25pF
E : Electrolytic	D : ± 0.5pF
P : Polyester Polypropylene	F : ± 1pF G : ± 3%
T : Tantalum	J : ± 5%
	K : ± 10%
	L : ± 15%
	M : ± 20%
	P : ± 100%, -0%
	Z : ± 80%, -20%

15.2. Parts list

Ref. No.	Part No.	Part Name & Description	Remarks
		CAPACITORS	
C001	ECA1HM4R7B	CAP E 4.7UF-50V	
C003	ECJ2VC1H101J	CAP C 100PF-J-50V	
C004	ECJ2VF1E224Z	CAP C .22UF-Z-25V	
C006	EEUFC1A471B	CAP E 470UF-10V	
C007	ECA1HM4R7B	CAP E 4.7UF-50V	
C009	ECJ2VC1H101J	CAP C 100PF-J-50V	
C010	ECJ2VF1E224Z	CAP C .22UF-Z-25V	
C012	EEUFC1A471B	CAP E 470UF-10V	
C015	F2A1H2R2A162	CAP E 2.2UF-50V	
C016	F2A1H2R2A162	CAP E 2.2UF-50V	
C051	EEUFC1E470B	CAP E 47UF-25V	
C052	TACCX103T50V	CAP C .01UF-50V	
C302	ECCR1H221JC5	CAP C 220PF-J-50V	
C304	ECQE2104KFW	CAP P .10UF-K-200V	
C305	ECA1HM470B	CAP E 47UF-50V	
C306	ECA2EM100E	CAP E 10UF-250V	
C307	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C308	ECA1HM220B	CAP E 22UF-50V	
C309	ECA2EM100B	CAP E 10UF-250V	
C312	ECKC3D102KBN	CAP C 1000PF-K-2KV	
C313	ECKR2H102KB5	CAP C 1000PF-K-500V	
C315	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C331	ECA1HM470B	CAP E 47UF-50V	

Ref. No.	Part No.	Part Name & Description	Remarks
C332	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C333	ECA1HM470B	CAP E 47UF-50V	
C334	ECA2EM470B	CAP E 47UF-250V	
C335	ECCR1H221JC5	CAP C 220PF-J-50V	
C336	ECA1HM470B	CAP E 47UF-50V	
C337	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C339	ECQE2104KFW	CAP P .10UF-K-200V	
C340	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C341	ECA2EM100B	CAP E 10UF-250V	
C345	ECKC3D102KBN	CAP C 1000PF-K-2KV	
C346	ECKR2H102KB5	CAP C 1000PF-K-500V	
C362	ECCR1H221JC5	CAP C 220PF-J-50V	
C364	ECQE2104KFW	CAP P .10UF-K-200V	
C365	ECA2EM100B	CAP E 10UF-250V	
C366	ECA1HM470B	CAP E 47UF-50V	
C367	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C368	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C372	ECKC3D102KBN	CAP C 1000PF-K-2KV	
C373	ECKR2H102KB5	CAP C 1000PF-K-500V	
C374	ECA1CM101B	CAP E 100UF-16V	
C405	ECA1EHG102E	CAP E 1000UF-25V	
C406	ECA1EHG102E	CAP E 1000UF-25V	
C407	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C408	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C411	ECJ2VB1H822K	CAP C .0082UF-K-50V	
C412	ECQB1224KF3	CAP P .22UF-K-100V	
C413	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C414	ECJ2VB1H272K	CAP C .0027UF-K-50V	
C417	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C418	ECJ2VF1H223Z	CAP C .022UF-Z-50V	
C421	ECEA1CN220UB	CAP E 22UF-16V	
C458	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C461	ECA1HHG221B	CAP E 220UF-50V	
C501	ECA1EM101B	CAP E 100UF-25V	
C502	ECQV1H105JL3	CAP P 1.0UF-J-50V	
C503	ECKR2H102KB5	CAP C 1000PF-K-500V	
C509	ECWF2474JSR	CAP P .47UF-J-200V	
C510	ECJ2VC1H221J	CAP C 220PF-J-50V	
C511	ECWH20222JVY	CAP P 2200PF-J-2KV	⚠
C512	ECWH20202JVY	CAP P 2000PF-J-2KV	⚠
C513	ECQF4103JZH	CAP P .01UF-J-400V	⚠
C514	ECWH20222JVY	CAP P 2200PF-J-2KV	⚠
C518	ECKW3D221JBP	CAP C 220PF-J-2KVDC	⚠
C519	ECKW3D221JBP	CAP C 220PF-J-2KVDC	⚠
C520	ECQB1H103JF3	CAP P .01UF-J-50V	⚠
C524	ECQB1224JF3	CAP P .22UF-J-100V	
C525	ECEA1HN220UB	CAP E 22UF-50V	
C526	ECA2EM101E	CAP E 100UF-250V	
C527	ECKR2H102KB5	CAP C 1000PF-K-500V	
C528	ECA1HM470B	CAP E 47UF-50V	⚠
C531	ECA160V33UE	CAP E 33UF-160V	

Ref. No.	Part No.	Part Name & Description	Remarks
C533	ECKR2H101KB5	CAP C 100UF-K-500V	
C535	ECA1EM471E	CAP E 470UF-25V	
C601	EEUFC1C331B	CAP E 330UF-16V	
C602	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C653	ECA1HM010E	CAP E 1UF-50V	
C654	ECA1HM010E	CAP E 1UF-50V	
C701	ECA1CM101B	CAP E 100UF-16V	
C702	ECKW3D271KBP	CAP C 270PF-K-2KV	
C703	ECQM2104KZW	CAP P .1UF-K-200V	
C704	ECKR2H391KB5	CAP C 390PF-K-500V	
C707	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C708	ECQE1685KFB	CAP P 6.8UF-K-100V	
C801	ECQU2A474MLA	CAP. P. 47UF-M-250VAC	⚠
C802	ECQU2A474MLA	CAP. P. 47UF-M-250VAC	⚠
C803	ECKCNA222ME7	CAP C 2200PF-M-125V	⚠
C804	ECKCNA222ME7	CAP C 2200PF-M-125V	⚠
C805	ECKW2H472PU7	CAP C 4700PF-P-500V	⚠
C806	ECKW2H472PU7	CAP C 4700PF-P-500V	⚠
C807	ECKW2H472PU7	CAP C 4700PF-P-500V	⚠
C808	ECA1EM101B	CAP E 100UF-25V	
C809	ECJ2VB1E223K	CAP C .022UF-K-25V	
C810	EETED2D102C	CAP E 1000PF-200V	⚠
C812	ECA1EHG471B	CAP E 470UF-25V	
C814	ECKW3D102KBP	CAP C 1000PF-K-2KV	
C815	ECQB1H152JF3	CAP P 1500PF-J-50V	
C817	ECKW3D102KBP	CAP C 1000PF-K-2KV	
C819	ECQB1H102JF3	CAP P 1000PF-J-50V	
C820	ECQV1H334JL3	CAP P .33UF-J-50V	
C821	ECQB1H272KF3	CAP P 2700PF-K-50V	
C822	ECA1HM220B	CAP E 22UF-50V	
C823	ECJ2VC1H151J	CAP C 150PF-J-50V	
C824	EEUFC1V151B	CAP E 150UF-35V	
C825	ECKCNA102MBB	CAP C .001UF-M-125V	⚠
C826	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C830	EETHC2C471B	CAP E 470PF-160V	⚠
C831	ECKW3D821KBP	CAP C 820PF-K-2KV	
C832	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C834	EEUFC1V222E	CAP E 2200UF-35V	
C836	ECKR3A331KBP	CAP C 330PF-K-1KVDC	
C837	ECA1EM472E	CAP E 4700UF-25V	
C839	ECKR3A331KBP	CAP C 330PF-K-1KVDC	
C841	ECA1EM472E	CAP E 4700UF-25V	
C842	ECKR3A331KBP	CAP C 330PF-K-1KVDC	
C843	ECA1VM222E	CAP E 2200UF-35V	
C844	ECKR3A331KBP	CAP C 330PF-K-1KVDC	
C845	ECA1VM222E	CAP E 2200UF-35V	
C846	ECKR3A331KBP	CAP C 330PF-K-1KVDC	
C848	ECA1CM101B	CAP E 100UF-16V	
C849	ECKR1H223ZF5	CAP C .022UF-Z-50V	
C851	ECQV1H104JL3	CAP P .10UF-J-50V	
C852	ECA1EM101B	CAP E 100UF-25V	

Ref. No.	Part No.	Part Name & Description	Remarks
C853	ECJ2YF1E474Z	CAP C .47UF-Z-25V	
C854	ECA1CM101B	CAP E 100UF-16V	
C855	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C856	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C860	ECJ2VB1H103K	CAP C .01UF-K-50V	
C861	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C862	ECJ2VB1H103K	CAP C .01UF-K-50V / PT-47X54J	
C863	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C864	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C865	ECA1CM221B	CAP E 10UF-16V	
C866	ECA0JM221B	CAP E 220UF-6.3V	
C867	ECA1CM221B	CAP E 10UF-16V	
C868	EEUFC1C471B	CAP E 470UF-16V	
C869	EEUFC1A471B	CAP E 470UF-10V	
C870	EEUFC1A471B	CAP E 470UF-10V	
C874	ECA1VM221B	CAP E 220UF-35V	
C875	ECA1VM221B	CAP E 220UF-35V	
C876	ECA1VM221B	CAP E 220UF-35V	
C877	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C878	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C879	ECA0JM221B	CAP E 220UF-6.3V	
C880	ECA0JM221B	CAP E 220UF-6.3V	
C885	EEUFC1A471B	CAP E 470UF-10V	
C886	EEUFC1A471B	CAP E 470UF-10V	
C889	ECA1VM221B	CAP E 220UF-35V	
C890	ECA1VM221B	CAP E 220UF-35V	
C902	ECQM2103KZ3	CAP P .01UF-K-200V	
C903	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C904	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C906	ECQM2103KZ3	CAP P .01UF-K-200V	
C907	ECA2CM100E	CAP E 10UF-160V	
C908	ECA1CM101B	CAP E 100UF-16V	
C909	ECA1CM101B	CAP E 100UF-16V	
C910	ECA2CM100E	CAP E 10UF-160V	
C911	ECQE2104KFW	CAP P .10UF-K-200V	
C912	ECA1HM220B	CAP E 22UF-50V	
C913	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C916	ECQE2104KFW	CAP P .10UF-K-200V	
C939	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C940	ECQM2103KZ3	CAP P .01UF-K-200V	
C941	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C942	ECQM2103KZ3	CAP P .01UF-K-200V	
C943	ECA2CM100E	CAP E 10UF-160V	
C944	ECA1CM101B	CAP E 100UF-16V	
C945	ECA1CM101B	CAP E 100UF-16V	
C947	ECA2CM100E	CAP E 10UF-160V	
C948	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C949	ECQE2104KFW	CAP P .10UF-K-200V	
C962	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C963	ECQM2103KZ3	CAP P .01UF-K-200V	
C964	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C965	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C966	ECQM2103KZ3	CAP P .01UF-K-200V	
C967	ECA2CM100E	CAP E 10UF-160V	

Ref. No.	Part No.	Part Name & Description	Remarks
C968	ECA1CM101B	CAP E 100UF-16V	
C969	ECA1CM101B	CAP E 100UF-16V	
C970	ECA2CM100E	CAP E 10UF-160V	
C971	ECQE2104KFW	CAP P .10UF-K-200V	
C972	ECA1HM220B	CAP E 22UF-50V	
C972	ECA1HM220B	CAP E 22UF-50V	
C1304	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C1305	ECJ2VB1C104K	CAP C .1UF-K-16V	
C1306	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C1307	ECA1CM101B	CAP E 100UF-16V	
C1502	ECQE6104KFB	CAP P 100UF-K-100V	
C1503	ECQE6104KFB	CAP P 100UF-K-100V	
C1504	ECJ2FB1H104K	CAP C .1UF-K-50V	
C1505	ECA1CM101B	CAP E 100UF-16V	
C1506	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C1508	ECA1CM101B	CAP E 100UF-16V	
C1509	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C1510	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C1511	ECJ2VC1H471J	CAP C 470PF-J-50V	
C1513	ECEA1EN101UB	CAP E 100UF-25V	
C1514	ECA1CM101B	CAP E 100UF-16V	
C2201	ECJ2VB1C104K	CAP C .1UF-K-16V	
C2202	ECA1HM100B	CAP E 10UF-50V	
C2203	ECA1HMR47B	CAP E .47UF-50V	
C2204	ECQB1H473JF3	CAP P .047UF-J-50V	
C2205	ECSF1CE335VB	CAP E 33MF-16V	
C2206	ECQB1H223JF3	CAP P .022UF-J-50V	
C2207	ECA1HM010B	CAP E 1UF-50V	
C2208	ECSF1CE106VB	CAP E 10UF-16V	
C2209	ECA1HM4R7B	CAP E 4.7UF-50V	
C2210	ECA1HM2R2B	CAP E 2.2UF-50V	
C2210	F2A1H2R2A162	CAP E 2.2UF-50V	
C2211	ECJ2VB1C104K	CAP C .1UF-K-16V	
C2212	ECJ2VB1C104K	CAP C .1UF-K-16V	
C2214	ECA1CM101B	CAP E 100UF-16V	
C2215	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C2216	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C2303	ECA50YT1R5KB	CAP E 1.5UF-50V / PT-47X54J	
C2303	ECA50YT2R2KB	CAP E 2.2UF-50V / PT-53TW54J	
C2306	ECA50YT1R5KB	CAP E 1.5UF-50V / PT-47X54J	
C2306	ECA50YT2R2KB	CAP E 2.2UF-50V / PT-53TW54J	
C2309	ECQB1H224JF3	CAP P .22UF-J-50V / PT-53TW54J	
C2310	ECQB1H224JF3	CAP P .22UF-J-50V	
C2313	F1J1C225A083	CAP C 2.2UF-Z-16V / PT-53TW54J	
C2314	F1J1C225A083	CAP C 2.2UF-Z-16V	
C2315	ECJ2VF1C474Z	CAP C .47UF-Z-16V / PT-53TW54J	
C2316	ECJ3VB1H104K	CAP C .1UF-K-50V / PT-53TW54J	
C2317	ECJ3VB1H104K	CAP C .1UF-K-50V	
C2318	ECJ2VB1H333K	CAP C .033UF-K-50V / PT-53TW54J	
C2319	ECJ2VB1H333K	CAP C .033UF-K-50V	
C2320	ECJ2VB1H561K	CAP C 560PF-K-50V / PT-53TW54J	
C2321	ECQB1H224JF3	CAP P .22UF-J-50V / PT-53TW54J	
C2322	ECJ2VB1H561K	CAP C 560PF-K-50V	
C2323	ECQB1H224JF3	CAP P .22UF-J-50V	

Ref. No.	Part No.	Part Name & Description	Remarks
C2324	ECJ2VF1C474Z	CAP C .47UF-Z-16V / PT-53TW54J	
C2325	ECJ2VB1H103K	CAP C .01UF-K-50V / PT-53TW54J	
C2326	ECJ2VB1H471K	CAP C 470PF-K-50V / PT-53TW54J	
C2327	ECJ2VB1H471K	CAP C 470PF-K-50V	
C2328	ECJ2VC1H270J	CAP C 27PF-J-50V / PT-53TW54J	
C2329	ECJ2VC1H270J	CAP C 27PF-J-50V	
C2330	ECJ2VB1H471K	CAP C 470PF-K-50V / PT-53TW54J	
C2331	ECJ2VB1H471K	CAP C 470PF-K-50V	
C2332	ECJ2VF1C474Z	CAP C .47UF-Z-16V / PT-53TW54J	
C2333	ECJ2VB1H331K	CAP C 330PF-K-50V / PT-53TW54J	
C2334	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V / PT-47X54J	
C2334	ECJ2VF1C474Z	CAP C .47UF-Z-16V / PT-53TW54J	
C2335	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V / PT-47X54J	
C2336	ECJ2VB1H102K	CAP C .001UF-K-50V / PT-53TW54J	
C2337	ECJ2VB1H331K	CAP C 330PF-K-50V	
C2338	ECJ2VB1H102K	CAP C .001UF-K-50V / PT-53TW54J	
C2338	ECJ2VB1H682K	CAP C .0068UF-K-50V / PT-47X54J	
C2339	ECJ3VB1H104K	CAP C .1UF-K-50V / PT-53TW54J	
C2340	ECJ3VB1H104K	CAP C .1UF-K-50V	
C2341	ECJ2VB1H331K	CAP C 330PF-K-50V / PT-53TW54J	
C2342	ECJ2VB1H331K	CAP C 330PF-K-50V	
C2343	ECJ3VB1H104K	CAP C .1UF-K-50V / PT-53TW54J	
C2344	ECJ3VB1H104K	CAP C .1UF-K-50V	
C2345	ECJ2VB1H471K	CAP C 470PF-K-50V / PT-53TW54J	
C2346	ECJ2VB1H471K	CAP C 470PF-K-50V	
C2347	ECJ2VF1C474Z	CAP C .47UF-Z-16V / PT-53TW54J	
C2348	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V / PT-47X54J	
C2348	ECJ2VF1C474Z	CAP C .47UF-Z-16V / PT-53TW54J	
C2349	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V / PT-47X54J	
C2350	ECJ2VB1H102K	CAP C .001UF-K-50V / PT-53TW54J	
C2351	ECJ2VB1H471K	CAP C 470PF-K-50V / PT-53TW54J	
C2352	ECJ2VB1H102K	CAP C .001UF-K-50V / PT-53TW54J	
C2352	ECJ2VB1H682K	CAP C .0068UF-K-50V / PT-47X54J	
C2353	ECJ2VB1H471K	CAP C 470PF-K-50V	
C2354	ECJ2VB1H103K	CAP C .01UF-K-50V / PT-53TW54J	
C2355	ECJ2VB1H333K	CAP C .033UF-K-50V / PT-53TW54J	
C2356	ECJ2VB1H333K	CAP C .033UF-K-50V	
C2357	ECJ2VF1C474Z	CAP C .47UF-Z-16V / PT-53TW54J	
C2358	ECJ2VB1H561K	CAP C 560PF-K-50V / PT-53TW54J	
C2359	ECJ2VB1H561K	CAP C 560PF-K-50V	
C2360	ECJ3VB1H104K	CAP C .1UF-K-50V / PT-53TW54J	
C2361	ECJ3VB1H104K	CAP C .1UF-K-50V	
C2362	ECJ3VB1H104K	CAP C .1UF-K-50V / PT-53TW54J	
C2363	ECJ3VB1H104K	CAP C .1UF-K-50V	
C2364	EEUFC1E222E	CAP E 2200UF-25V / PT-53TW54J	
C2365	EEUFC1E222E	CAP E 2200UF-25V	
C2366	ECJ2VF1C474Z	CAP C .47UF-Z-16V / PT-53TW54J	
C2367	EEUFC1E222E	CAP E 2200UF-25V / PT-53TW54J	
C2368	EEUFC1E222E	CAP E 2200UF-25V	
C2369	ECEA1CN100UB	CAP E 10UF-16V	
C2370	ECEA1CN100UB	CAP E 10UF-16V	
C2371	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C2372	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C2373	ECA1HM100B	CAP E 10UF-50V	

Ref. No.	Part No.	Part Name & Description	Remarks
C2374	ECA1EM101B	CAP E 100UF-25V	
C2375	ECA1HM100B	CAP E 10UF-50V	
C2376	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2377	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2378	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2379	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2381	ECEA1HN010UB	CAP E 1UF-50V / PT-47X54J	
C2381	ECJ2VB1H561K	CAP C 560PF-K-50V / PT-47X54J	
C2382	ECJ2VB1H561K	CAP C 560PF-K-50V / PT-47X54J	
C2383	ECEA1HN010UB	CAP E 1UF-50V / PT-47X54J	
C2394	ECJ2VF1H104Z	CAP C .1UF-Z-50V / PT-47X54J	
C2398	ECJ2VF1H104Z	CAP C .1UF-Z-50V / PT-47X54J	
C2403	ECJ2VB1H561K	CAP C 560PF-K-50V / PT-47X54J	
C2404	ECJ2VB1H561K	CAP C 560PF-K-50V / PT-47X54J	
C2421	ECJ2VB1H561K	CAP C 560PF-K-50V / PT-47X54J	
C2426	ECJ2VF1H104Z	CAP C .1UF-Z-50V / PT-47X54J	
C2434	ECJ2VF1H104Z	CAP C .1UF-Z-50V / PT-47X54J	
C2451	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2452	ECJ2VB1H332K	CAP C .0033UF-K-50V	
C2453	ECJ2VB1H333K	CAP C .033UF-K-50V	
C2454	ECJ2VB1H222K	CAP C .0022UF-K-50V	
C2455	ECJ2VB1C224K	CAP C .22UF-K-16V	
C2456	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2457	ECJ2VB1C104K	CAP C .1UF-K-16V	
C2458	ECA1HM4R7B	CAP E 4.7UF-50V	
C2459	ECA1HM4R7B	CAP E 4.7UF-50V	
C2460	ECJ2VB1H103K	CAP C .01UF-K-50V	
C2461	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2462	ECJ2VB1H332K	CAP C .0033UF-K-50V	
C2463	ECJ2VB1H333K	CAP C .033UF-K-50V	
C2464	ECJ2VB1H222K	CAP C .0022UF-K-50V	
C2465	ECJ2VB1C224K	CAP C .22UF-K-16V	
C2466	ECJ2VB1C104K	CAP C .1UF-K-16V	
C2467	ECA1HM4R7B	CAP E 4.7UF-50V	
C2468	ECA1HM4R7B	CAP E 4.7UF-50V	
C2469	ECA1HM4R7B	CAP E 4.7UF-50V	
C2470	ECA1CM101B	CAP E 100UF-16V	
C3201	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3202	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3203	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3331	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3332	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3333	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3334	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3335	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3336	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3337	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3338	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3339	ECJ2VB1H103K	CAP C .01UF-K-50V	
C3340	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C3341	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C3342	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3343	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3344	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	

Ref. No.	Part No.	Part Name & Description	Remarks
C3345	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3346	ECJ2VB1H103K	CAP C .01UF-K-50V	
C3347	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C3348	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C3349	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3350	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3351	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3352	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3353	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C3354	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3355	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3357	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3358	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3359	ECA1EM471E	CAP E 470UF-25V	
C3360	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3361	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3362	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3363	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3364	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C3365	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C3366	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C3367	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C3368	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C3369	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C7001	ECJ3YF1E225Z	CAP C 2.2UF-Z-25V	
C7002	ECJ3YF1E225Z	CAP C 2.2UF-Z-25V	
C7004	ECA1EHG221B	CAP E 220UF-25V	
C7006	ECA1EHG221B	CAP E 220UF-25V	
C7015	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C7016	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C7017	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C7018	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C7032	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C7033	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C7034	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C7035	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C7050	ECA1VM470B	CAP E 47UF-35V	
C7060	ECA1CHG101B	CAP E 100UF-16V	
C7061	ECA1CHG101B	CAP E 100UF-16V	
C7065	ECA1VM470B	CAP E 47UF-35V	
		DIODES	
D001	MAZ31500ML	DIODE ZENER	
D002	MAZ31500ML	DIODE ZENER	
D003	MAZ31500ML	DIODE ZENER	
D004	MAZ31500ML	DIODE ZENER	
D081	LN21RCPHL	DIODE	
D082	MAZ40560MF	DIODE ZENER	
D083	MAZ40560MF	DIODE ZENER	
DG1	TJSF17350	CONNECTOR	
DG3	TJSF17435	CONNECTOR	
D301	MA2C16700E	DIODE	
D302	MAZ40680LF	DIODE ZENER	
D303	TVSRM1V1	DIODE	
D304	B0HALP000002	DIODE FAST RECOVERY	

Ref. No.	Part No.	Part Name & Description	Remarks
D304	MA2C165001VT	DIODE	
D306	MA2C165001VT	DIODE	
D307	MA2C165001VT	DIODE	
D312	MA2C18800E	DIODE	
D313	MA2C18800E	DIODE	
D314	MA2C18800E	DIODE	
D315	MA2C18800E	DIODE	
D331	B0HALP000002	DIODE FAST RECOVERY	
D331	MA2C165001VT	DIODE	
D334	MA2C165001VT	DIODE	
D335	MA2C165001VT	DIODE	
D339	MA2C18800E	DIODE	
D340	MA2C18800E	DIODE	
D341	MA2C18800E	DIODE	
D342	MA2C18800E	DIODE	
D361	B0HALP000002	DIODE FAST RECOVERY	
D361	MA2C165001VT	DIODE	
D363	MA2C165001VT	DIODE	
D364	MA2C165001VT	DIODE	
D369	MA2C18800E	DIODE	
D370	MA2C18800E	DIODE	
D371	MA2C18800E	DIODE	
D372	MA2C18800E	DIODE	
D407	MA3X152K0L	DIODE	
D409	MA3X152K0L	DIODE	
D410	MA3X152K0L	DIODE	
D411	MA3X152K0L	DIODE	
D451	B0EAKC000003	DIODE RECTIFIER	
D452	B0EAKC000003	DIODE RECTIFIER	
D453	B0EAKC000003	DIODE RECTIFIER	
D454	B0EAKC000003	DIODE RECTIFIER	
D455	B0EAKC000003	DIODE RECTIFIER	
D456	B0EAKC000003	DIODE RECTIFIER	
D458	B0EAKL000008	DIODE RECTIFIER	
D465	MAZ40390MF	DIODE ZENER	
D466	MA3X152K0L	DIODE	
D501	B0HALP000002	DIODE FAST RECOVERY	
D502	MAZ31500ML	DIODE ZENER	
D503	B0HBRV000001	DIODE FAST RECOVERY	
D504	MAZ42700MF	DIODE ZENER	
D509	MA3X152K0L	DIODE	
D510	MAZ30820LL	DIODE ZENER	
D511	B0HAHP000014	DIODE FAST RECOVERY	
D512	B0HALP000002	DIODE FAST RECOVERY	⚠
D513	MA2C165001VT	DIODE	
D0514	MAZ30300LL	DIODE ZENER	
D515	B0HALP000002	DIODE FAST RECOVERY	
D516	EU2YXV0	DIODE	
D519	AU02ZV0	DIODE	
D520	MA3X152K0L	DIODE	
D634	MA2C165001VT	DIODE	
D650	MAZ41100MF	DIODE ZENER	
D651	MAZ41100MF	DIODE ZENER	
D656	MAZ41100MF	DIODE ZENER	

[illegible]	[illegible]	DIODE ZENER	

Ref. No.	Part No.	Part Name & Description	Remarks
D657	**MAZ41100MF**	**DIODE ZENER**	
D659	**MAZ41100MF**	**DIODE ZENER**	
D660	**MAZ41100MF**	**DIODE ZENER**	
D662	**MAZ41100MF**	**DIODE ZENER**	
D663	**MAZ41100MF**	**DIODE ZENER**	
D702	**B0HALP000002**	**DIODE FAST RECOVERY**	
D801	**D3SB80-4101**	**DIODE**	⚠
D802	**D4EAB3610002**	**DIODE**	⚠
D804	**B0EBKM000016**	**DIODE / PT-53TW54J**	
D804	**B0EBKM000016**	**DIODE RECTIFIER / PT-47X54J**	
D815	**MA2C165001VT**	**DIODE**	
D816	**MA2C70000F**	**DIODE**	
D817	**AU01ZV0**	**DIODE**	
D818	**MAZ32700LL**	**DIODE ZENER**	
D819	**B0BA01000046**	**DIODE VOLTAGE REGULATION**	⚠
D822	**B0AAGM000006**	**DIODE SWITCHING**	
D825	**SF5L60U-4115**	**GERMANIUM DIODE**	⚠
D827	**SF5LC30-4115**	**GERMANIUM DIODE**	
D828	**SF5LC30-4115**	**GERMANIUM DIODE**	
D829	**SF5LC30-4115**	**GERMANIUM DIODE**	
D830	**B0HAPM000012**	**DIODE FAST RECOVERY**	
D831	**B0HAPM000012**	**DIODE FAST RECOVERY**	
D835	**B0JAME000052**	**DIODE SCHOTTKY BARRIER**	
D837	**MA3X152K0L**	**DIODE**	
D870	**MA2C165001VT**	**DIODE**	
D872	**MA2062-BTP**	**DIODE**	
D873	**MAZ31500ML**	**DIODE ZENER**	
D874	**MA2120-ATP**	**DIODE**	
D875	**MA2062-BTP**	**DIODE**	
D880	**B0JCME000025**	**DIODE SCHOTTKY BARRIER**	
D881	**B0JCME000025**	**DIODE SCHOTTKY BARRIER**	
D882	**B0JCME000025**	**DIODE SCHOTTKY BARRIER**	
D884	**MA2062-BTP**	**DIODE**	
D885	**MA2062-BTP**	**DIODE**	
D886	**MA2C165001VT**	**DIODE**	
D887	**B0JCME000025**	**DIODE SCHOTTKY BARRIER**	
D888	**B0JCME000025**	**DIODE SCHOTTKY BARRIER**	
D891	**MAZ30330LL**	**DIODE ZENER**	
D902	**MA2C18800E**	**DIODE**	
D933	**MA2C18800E**	**DIODE**	
D953	**B0ZAZ0000047**	**DIODE**	
D962	**MA2C18800E**	**DIODE**	
D973	**B0ZAZ0000047**	**DIODE**	
D983	**B0ZAZ0000047**	**DIODE**	
D1502	**B0HACW000001**	**DIODE FAST RECOVERY**	
D1503	**MAZ30300LL**	**DIODE ZENER**	⚠
D1504	**B0HACW000001**	**DIODE FAST RECOVERY**	
D1505	**MA2C0290BF**	**DIODE**	
D1506	**MAZ30510ML**	**DIODE ZENER**	⚠
D1507	**MAZ30300LL**	**DIODE ZENER**	
D1510	**MAZ30300LL**	**DIODE ZENER**	
D1599	**MA3X152K0L**	**DIODE**	

Ref. No.	Part No.	Part Name & Description	Remarks
D2301	MA3X152K0L	DIODE / PT-53TW54J	
D2302	MA3X152K0L	DIODE	
D2303	MAZ30510HL	DIODE ZENER	
D2304	MAZ30510HL	DIODE ZENER / PT-53TW54J	
D2305	MAZ30510HL	DIODE ZENER / PT-53TW54J	
D2306	MA3X152K0L	DIODE	
D2307	MA3X152K0L	DIODE	
D2310	MA2C165001VT	DIODE / PT-53TW54J	
D2311	MA2C165001VT	DIODE / PT-53TW54J	
D2330	MA3X152K0L	DIODE / PT-47X54J	
D2331	MA3X152K0L	DIODE / PT-47X54J	
D2334	MA2C165001VT	DIODE / PT-47X54J	
D3301	MAZ31100ML	DIODE ZENER	
D3302	MAZ31100ML	DIODE ZENER	
D3304	MAZ31100ML	DIODE ZENER	
D3306	MAZ31100ML	DIODE ZENER	
D3307	MAZ31100ML	DIODE ZENER	
D3308	MAZ31100ML	DIODE ZENER	
D3309	MAZ31100ML	DIODE ZENER	
D3310	MAZ31100ML	DIODE ZENER	
D3312	MAZ31100ML	DIODE ZENER	
D3314	MAZ31100ML	DIODE ZENER	
D3316	MAZ31100ML	DIODE ZENER	
D3317	MAZ31100ML	DIODE ZENER	
D3318	MAZ31100ML	DIODE ZENER	
D3319	MAZ31100ML	DIODE ZENER	
D3320	MAZ31100ML	DIODE ZENER	
D3321	MAZ31100ML	DIODE ZENER	
D3322	MAZ31100ML	DIODE ZENER	
D3323	MAZ31100ML	DIODE ZENER	
D3324	MAZ31100ML	DIODE ZENER	
D3325	MAZ31100ML	DIODE ZENER	
D3326	MAZ31100ML	DIODE ZENER	
D3328	MAZ31100ML	DIODE ZENER	
D3329	MAZ31100ML	DIODE ZENER	
D3330	MAZ31100ML	DIODE ZENER	
D3332	CVS20A120MTA	DIODE	
D3334	CVS20A120MTA	DIODE	
D3335	MAZ31100ML	DIODE ZENER	
D3336	MAZ31100ML	DIODE ZENER	
D3339	MAZ31100ML	DIODE ZENER	
D3340	MAZ31100ML	DIODE ZENER	
D7060	MA3X152K0L	DIODE	
FUSES			
F801	K5D632AD0002	FUSE 6.3A/125V	⚠
INTEGRATED CIRCUITS			
IC451	C1AA00000521	VERTICAL OUTPUT	
IC701	C0BBBA000043	EW, HHS ADJ. OP. AMPLIFIER	
IC801	AN8029	POWER SUPPLY	⚠
IC802	C0EAS0000025	MAIN VOLTAGE DETECTOR	⚠
IC805	AN78M12LB	12V REGULATOR	
IC811	0N3171RLF	OPTO COUPLER	⚠
IC872	C0DACMG00001	9V REGULATOR	

[illegible]	[illegible]	[illegible]	

Ref. No.	Part No.	Part Name & Description	Remarks
IC874	SI-8050J	5V REGULATOR	
IC875	C0DACMG00001	3.3V REGULATOR	
IC876	C0DACMG00001	2.5V REGULATOR	
IC877	C0DACMG00001	1.8V REGULATOR	
IC880	AN78M12LB	12V REGULATOR	
IC1302	TVR2AJ200S	MAIN EEPROM	
IC1303	TVR2AJ199S	CONVERGENCE EEPROM	
IC1501	C0ABBA000073	EHT AD. OPERATIONAL AMPLIFIER	
IC2201	AN5849S-E1V	MTS AUDIO	
IC2301	C1AA00000645	AUDIO AMPLIFIER	
IC2302	C1AA00000645	AUDIO AMPLIFIER / PT-53TW54J	
IC2303	C0ABBA000073	VAO OPERATIONAL AMPLIFIER	
IC2401	C1BB00000772	BBE VIVA PROCESSOR / PT-53TW54J	
IC2401	NJW1164MPTE1	BBE PROCESSOR / PT-47X54J	
IC7001	C5AA00000196	CONVERGENCE AMPLIFIER	
IC7002	C5AA00000196	CONVERGENCE AMPLIFIER	
		COILS	
L001	ELELN330JA	COIL PEAKING 33UH	
L002	ELELN330JA	COIL PEAKING 33UH	
L301	ELEBD101KA	COIL PEAKING 100UH	
L302	ELESN100JA	COIL PEAKING 10UH	
L302	ELESN6R8JA	COIL PEAKING 6.8UH	
L303	ELESN6R8JA	COIL PEAKING 6.8UH	
L304	ELESN4R7JA	COIL PEAKING 4.7UH	
L307	ELEBD101KA	COIL PEAKING 100UH	
L331	ELESN100JA	COIL PEAKING 10UH	
L331	ELESN6R8JA	COIL PEAKING 6.8UH	
L332	ELESN6R8JA	COIL PEAKING 6.8UH	
L333	G0C560KA0021	COIL PEAKING 56UH	
L334	ELESN4R7KA	COIL PEAKING 4.7UH	
L335	ELEBD101KA	COIL PEAKING 100UH	
L337	G0C560KA0021	COIL PEAKING 56UH	
L341	ELEBD101KA	COIL PEAKING 100UH	
L361	ELEBD101KA	COIL PEAKING 100UH	
L362	ELESN100JA	COIL PEAKING 10UH	
L363	ELESN150JA	COIL PEAKING 15UH	
L364	ELESN4R7JA	COIL PEAKING 4.7UH	
L366	ELEBD101KA	COIL PEAKING 100UH	
L500	TALL08TR82MA	COIL	
L501	EXCELSA35T	FERRITE BEAD	
L510	EXCELDR25V	FERRITE BEAD	
L511	EXCELDR25V	FERRITE BEAD	
L515	EXCELDR25V	FERRITE BEAD	
L516	EXCELDR25V	FERRITE BEAD	
L555	ELH5L718	COIL LINEARITY	
L701	ELESN100KA	COIL PEAKING 10UH	
L702	EXCELSA35T	FERRITE BEAD	
L703	ELC18B152L	COIL CHOKE	
L704	ELC18B151G	COIL CHOKE 150UH	
L805	EXCELDR25V	FERRITE BEAD	
L806	EXCELDR25V	FERRITE BEAD	
L808	EXCELDR35V	FERRITE BEAD	
L810	EXCELDR25V	FERRITE BEAD	
L811	EXCELDR25V	FERRITE BEAD	

Ref. No.	Part No.	Part Name & Description	Remarks
L815	EXCELSA39E	FERRITE BEAD	
L815	EXCELSA39V	FERRITE BEAD	
L816	EXCELSA39E	FERRITE BEAD	
L816	EXCELSA39V	FERRITE BEAD	
L817	TALL08T680KA	COIL	
L818	TALL08T680KA	COIL	
L819	EXCELDR35V	FERRITE BEAD	
L820	EXCELDR35V	FERRITE BEAD	
L821	EXCELDR35V	FERRITE BEAD	
L825	TALL08T330KA	COIL	
L826	TALL08T330KA	COIL	
L827	TALL08T330KA	COIL	
L880	TALL08T220KA	COIL	
L881	TALL08T221KA	COIL	
L882	TALL08T220KA	COIL	
L883	G0ZZ00001909	INT CKT	
L884	TALFP15B151K	LINE FILTER	
L885	G0ZZ00001909	INT CKT	
L886	G0A101E00003	COIL LINE CHOKE	
L887	G0A101E00003	COIL LINE CHOKE	
L888	G0A470F00004	COIL LINE CHOKE	
L889	TALL08T221KA	COIL	
L890	TALL08T221KA	COIL	
L892	G0ZZ00001909	INT CKT	
L893	G0ZZ00001909	INT CKT	
L894	G0A101E00003	COIL LINE CHOKE	
L895	G0A101E00003	COIL LINE CHOKE	
L901	EXCELSA35T	FERRITE BEAD	
L902	EXCELSA35T	FERRITE BEAD	
L903	EXCELSA35T	FERRITE BEAD	
L933	EXCELSA35T	FERRITE BEAD	
L934	EXCELSA35T	FERRITE BEAD	
L935	EXCELSA35T	FERRITE BEAD	
L961	EXCELSA35T	FERRITE BEAD	
L962	EXCELSA35T	FERRITE BEAD	
L963	EXCELSA35T	FERRITE BEAD	
L1301	EXCELSA35T	FERRITE BEAD	
L1302	EXCELSA39V	FERRITE BEAD	
L1303	EXCELSA39V	FERRITE BEAD	
L1304	EXCELSA39V	FERRITE BEAD	
L1305	EXCELSA39V	FERRITE BEAD	
L1306	EXCELSA39V	FERRITE BEAD	
L2201	ELESN100JA	COIL PEAKING 10UH	
L2309	EXCELDR35V	FERRITE BEAD / PT-53TW54J	
L2310	EXCELDR35V	FERRITE BEAD	
L2311	ELC12E390L	COIL CHOKE 39UH	
L2312	ELC12E390L	COIL CHOKE 39UH / PT-53TW54J	
L2313	EXCELDR35V	FERRITE BEAD / PT-53TW54J	
L2314	EXCELDR35V	FERRITE BEAD	
L2315	ELC12E390L	COIL CHOKE 39UH	
L2316	ELC12E390L	COIL CHOKE 39UH / PT-53TW54J	
L2317	TALL08T330KA	COIL	
L2318	TALL08T330KA	COIL	
L2354	EXCELSA35T	FERRITE BEAD / PT-47X54J	

Ref. No.	Part No.	Part Name & Description	Remarks
L2355	EXCELSA35T	FERRITE BEAD / PT-47X54J	
L7001	EXCELSA39V	FERRITE BEAD	
L7002	EXCELSA39V	FERRITE BEAD	
L7003	EXCELSA39V	FERRITE BEAD	
L7004	EXCELSA39V	FERRITE BEAD	
L7005	EXCELSA39V	FERRITE BEAD	
L7006	EXCELSA39V	FERRITE BEAD	
LF801	ELF21N035A	COIL LINE FILTER	⚠
LF801	ELF24V037A	COIL LINE FILTER	
LF803	ELF21N035A	COIL LINE FILTER	⚠
TRANSISTORS			
Q301	2SC1473ATA	TRANSISTOR	
Q302	2SC3526H	TRANSISTOR	
Q303	2SC1473ATA	TRANSISTOR	
Q304	2SA1309ATA	TRANSISTOR	
Q325	2SC3311ATA	TRANSISTOR	
Q331	2SC3526H	TRANSISTOR	
Q332	2SA1309ATA	TRANSISTOR	
Q353	2SC3942LB	TRANSISTOR	
Q354	B1BAAN000025	TRANSISTOR	
Q355	B1BCAN000004	TRANSISTOR	
Q362	2SC3311ATA	TRANSISTOR	
Q363	2SC3526H	TRANSISTOR	
Q364	2SA1309ATA	TRANSISTOR	
Q365	2SC3311ATA	TRANSISTOR	
Q366	2SC3311ATA	TRANSISTOR	
Q367	2SA1309ATA	TRANSISTOR	
Q368	2SA1309ATA	TRANSISTOR	
Q373	2SC3942LB	TRANSISTOR	
Q374	B1BAAN000025	TRANSISTOR	
Q375	B1BCAN000004	TRANSISTOR	
Q376	2SC3311ATA	TRANSISTOR	
Q393	2SC3942LB	TRANSISTOR	
Q394	B1BAAN000025	TRANSISTOR	
Q395	B1BCAN000004	TRANSISTOR	
Q397	2SC3311ATA	TRANSISTOR	
Q406	2PD601AR-115	TRANSISTOR	
Q501	B1CEML000001	TRANSISTOR	
Q509	2SC1473QRTA	TRANSISTOR	
Q510	2SC1473QRTA	TRANSISTOR	
Q512	2PD601AR-115	TRANSISTOR	
Q513	2PD601AR-115	TRANSISTOR	
Q551	B1BAJW000001	TRANSISTOR	
Q606	2PD601AR-115	TRANSISTOR	
Q701	2SK2538000LB	TRANSISTOR	
Q801	2SK2917LB	TRANSISTOR	
Q802	2PD601AR-115	TRANSISTOR	
Q803	2PB709AR-115	TRANSISTOR	
Q854	2SA19610QAHW	TRANSISTOR	
Q881	UN2214TX	TRANSISTOR	
Q882	UN2115TX	TRANSISTOR	
Q883	UN2215TX	TRANSISTOR	
Q901	2SB1321ARA	TRANSISTOR	

Ref. No.	Part No.	Part Name & Description	Remarks
Q903	2SA1309ATA	TRANSISTOR	
Q904	2SD1992ARA	TRANSISTOR	
Q905	2SC3311ATA	TRANSISTOR	
Q906	2SC3311ATA	TRANSISTOR	
Q907	2SA1309ATA	TRANSISTOR	
Q908	2SC3311ATA	TRANSISTOR	
Q934	2SA1309ATA	TRANSISTOR	
Q935	2SC3311ATA	TRANSISTOR	
Q936	2SC3311ATA	TRANSISTOR	
Q937	2SA1309ATA	TRANSISTOR	
Q938	2SB1321ARA	TRANSISTOR	
Q941	2SD1992ARA	TRANSISTOR	
Q951	2SC3311ATA	TRANSISTOR	
Q952	2SC3311ATA	TRANSISTOR	
Q953	2SC3311ATA	TRANSISTOR	
Q955	2SA1248SRA	TRANSISTOR	
Q956	2SC3116SRA	TRANSISTOR	
Q957	2SA1248SRA	TRANSISTOR	
Q958	2SC3116SRA	TRANSISTOR	
Q959	2SA1248SRA	TRANSISTOR	
Q960	2SC3116SRA	TRANSISTOR	
Q961	2SB1321ARA	TRANSISTOR	
Q962	2SC3311ATA	TRANSISTOR	
Q964	2SD1992ARA	TRANSISTOR	
Q965	2SA1309ATA	TRANSISTOR	
Q966	2SC3311ATA	TRANSISTOR	
Q967	2SC3311ATA	TRANSISTOR	
Q968	2SA1309ATA	TRANSISTOR	
Q1503	2SA1309ATA	TRANSISTOR	
Q1504	B1BAAV000003	TRANSISTOR	
Q1505	2SC3311ATA	TRANSISTOR	
Q2301	UN2215TX	TRANSISTOR	
Q2302	2PB709AR-115	TRANSISTOR	
Q2303	2PD601AR-115	TRANSISTOR	
Q2304	2PB709AR-115	TRANSISTOR	
Q2305	UN2115TX	TRANSISTOR	
Q2306	UNR221600L	TRANSISTOR	
Q2307	UNR221600L	TRANSISTOR	
Q2308	2PD601AR-115	TRANSISTOR	
Q2309	2PD601AR-115	TRANSISTOR	
Q2350	UNR221600L	TRANSISTOR / PT-47X54J	
Q2352	2PB709AR-115	TRANSISTOR / PT-47X54J	
Q2358	UNR221600L	TRANSISTOR / PT-47X54J	
Q2451	2PD601AR-115	TRANSISTOR	
Q2452	2PD601AR-115	TRANSISTOR	
Q7006	2PD601AR-115	TRANSISTOR	
Q7007	2PD601AR-115	TRANSISTOR	
Q7060	2PB709AR-115	TRANSISTOR	
Q7061	2PD601AR-115	TRANSISTOR	
RELAYS			
RL801	K6B1ADA00010	RELAY	⚠
RL802	K6B1ADA00010	RELAY	⚠
RESISTORS			

Ref. No.	Part No.	Part Name & Description	Remarks
R001	ERJ6GEYJ101V	RES M 100-J-1/10W	
R002	ERJ6GEYJ101V	RES M 100-J-1/10W	
R004	ERJ6GEYJ101V	RES M 100-J-1/10W	
R005	ERJ6GEYJ101V	RES M 100-J-1/10W	
R008	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R009	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R010	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R013	ERG1SJ273P	RES M 27K-J-1W	
R015	ERG1SJ273P	RES M 27K-J-1W	
R072	ERDS2TJ101T	RES C 100-J-1/4W	
R073	ERDS2TJ471T	RES C 470-J-1/4W	
R080	ERDS2TJ222T	RES C 2.2K-J-1/4W	
R081	ERDS2TJ222T	RES C 2.2K-J-1/4W	
R082	ERDS2TJ332T	RES C 3.3K-J-1/4W	
R083	ERDS2TJ512T	RES C 5.1K-J-1/4W	
R084	ERDS2TJ912T	RES C 9.1K-J-1/4W	
R086	ERDS2TJ681T	RES C 680-J-1/4W	
R087	ERDS2TJ331T	RES C 330-J-1/4W	
R088	ERDS2TJ123T	RES C 12K-J-1/4W / PT-53TW54J	
R088	ERDS2TJ392T	RES C 3.9K-J-1/4W / PT-47X54J	
R089	ERDS2TJ822T	RES C 8.2K-J-1/4W / PT-47X54J	
R301	ERDS1FJ394P	RES C 390K-J-1/2W	
R302	ERDS2TJ101T	RES C 100-J-1/4W	
R303	EROS2THF2200	RES M 220-F-1/4W	
R304	ERDS2TJ334T	RES C 330K-J-1/4W	
R305	EROS2THF2200	RES M 220-F-1/4W	
R306	EROS2THF1001	RES M 1K-F-1/4W	
R307	ERDS2TJ220T	RES C 22-J-1/4W	
R308	ERDS2TJ334T	RES C 330K-J-1/4W	
R310	ERDS2TJ562T	RES C 5.6K-J-1/4W	
R311	ERDS2TJ470T	RES C 47-J-1/4W	
R312	ERG7ZJ272	RES M 2.7K-J-7W	
R313	ERDS2TJ151T	RES C 150-J-1/4W	
R315	ERDS2TJ563T	RES C 56K-J-1/4W	
R316	ERDS2TJ821T	RES C 820-J-1/4W	
R317	ERDS2TJ332T	RES C 3.3K-J-1/4W	
R318	ERDS2TJ681T	RES C 680-J-1/4W	
R319	ERG12SJ101P	RES M 100-J-1W	
R320	ERDS1FJ330P	RES C 33-J-1/2W	
R321	ERDS1FJ330P	RES C 33-J-1/2W	
R322	ERG12SJ101P	RES M 100-J-1W	
R323	ERDS2TJ470T	RES C 47-J-1/4W	
R325	ERDS2TJ473T	RES C 47K-J-1/4W	
R325	ERDS2TJ681T	RES C 680-J-1/4W	
R326	ERDS2TJ101T	RES C 100-J-1/4W	
R327	ERC12GK331D	RES C 330-K-1/2W	
R328	ERDS1TJ104T	RES C 100K-J-1/2W	
R329	ERDS1FJ103T	RES C 10K-J-1/2W	
R331	EROS2THF2200	RES M 220-F-1/4W	
R332	ERDS2TJ101T	RES C 100-J-1/4W	
R333	EROS2THF2200	RES M 220-F-1/4W	
R334	ERDS2TJ220T	RES C 22-J-1/4W	
R335	EROS2THF1001	RES M 1K-F-1/4W	
R337	ERDS2TJ151T	RES C 150-J-1/4W	

Ref. No.	Part No.	Part Name & Description	Remarks
R338	**ERDS2TJ681T**	**RES C 680-J-1/4W**	
R341	**ERDS2TJ101T**	**RES C 100-J-1/4W**	
R344	**ERG7ZJ272**	**RES M 2.7K-J-7W**	
R345	**ERDS2TJ470T**	**RES C 47-J-1/4W**	
R346	**ERDS2TJ470T**	**RES C 47-J-1/4W**	
R348	**ERDS2TJ563T**	**RES C 56K-J-1/4W**	
R349	**ERDS2TJ821T**	**RES C 820-J-1/4W**	
R350	**ERG12SJ101P**	**RES M 100-J-1W**	
R351	**ERDS1FJ330P**	**RES C 33-J-1/2W**	
R352	**ERDS1FJ330P**	**RES C 33-J-1/2W**	
R353	**ERG12SJ101P**	**RES M 100-J-1W**	
R354	**ERDS2TJ473T**	**RES C 47K-J-1/4W**	
R354	**ERDS2TJ681T**	**RES C 680-J-1/4W**	
R355	**ERDS1FJ103T**	**RES C 10K-J-1/2W**	
R356	**ERC12GK331D**	**RES C 330-K-1/2W**	
R357	**ERDS1TJ104T**	**RES C 100K-J-1/2W**	
R360	**ERDS2TJ470T**	**RES C 47-J-1/4W**	
R363	**ERDS2TJ220T**	**RES C 22-J-1/4W**	
R365	**ERDS2TJ221T**	**RES C 220-J-1/4W**	
R366	**ERDS2TJ101T**	**RES C 100-J-1/4W**	
R367	**EROS2THF2200**	**RES M 220-F-1/4W**	
R368	**EROS2THF2200**	**RES M 220-F-1/4W**	
R369	**ERDS2TJ472T**	**RES C 4.7K-J-1/4W**	
R370	**EROS2THF1470**	**RES M 1.47K-F-1/4W**	
R371	**EROS2THF1001**	**RES M 1K-F-1/4W**	
R372	**EROS2THF82R0**	**RES M 82.0-F-1/4W**	
R374	**ERDS2TJ151T**	**RES C 150-J-1/4W**	
R375	**ERDS2TJ470T**	**RES C 47-J-1/4W**	
R378	**ERDS2TJ101T**	**RES C 100-J-1/4W**	
R379	**ERDS2TJ563T**	**RES C 56K-J-1/4W**	
R380	**ERDS2TJ821T**	**RES C 820-J-1/4W**	
R382	**ERDS1FJ103T**	**RES C 10K-J-1/2W**	
R383	**ERG12SJ101P**	**RES M 100-J-1W**	
R384	**ERDS1FJ330P**	**RES C 33-J-1/2W**	
R385	**ERDS1FJ330P**	**RES C 33-J-1/2W**	
R386	**ERG12SJ101P**	**RES M 100-J-1W**	
R387	**ERG7ZJ272**	**RES M 2.7K-J-7W**	
R389	**ERDS2TJ473T**	**RES C 47K-J-1/4W**	
R390	**ERC12GK331D**	**RES C 330-K-1/2W**	
R391	**ERDS1TJ104T**	**RES C 100K-J-1/2W**	
R392	**EROS2THF8201**	**RES M 8.2K-F-1/4W**	
R393	**EROS2THF5101**	**RES M 5.1K-F-1/4W**	
R393	**EROS2THF8201**	**RES M 8.2K-F-1/4W**	
R394	**EROS2THF9760**	**RES M 976-F-1/4W**	
R395	**ERDS2TJ221T**	**RES C 220-J-1/4W**	
R396	**ERDS2TJ472T**	**RES C 4.7K-J-1/4W**	
R397	**EROS2THF1201**	**RES M 1.2K-F-1/4W**	
R398	**EROS2THF3300**	**RES M 330-F-1/4W**	
R408	**ERJ6GEYJ272V**	**RES M 2.7K-J-1/10W**	
R409	**ERDS2TJ563T**	**RES C 56K-J-1/4W**	
R410	**ERJ6GEYJ224V**	**RES M 220K-J-1/10W**	
R411	**ERJ6GEYJ103V**	**RES M 10K-J-1/10W**	
R412	**ERJ6GEYJ682V**	**RES M 6.8K-J-1/10W**	
R415	**ERG3FJ331H**	**RES M 330-J-3W**	

Ref. No.	Part No.	Part Name & Description	Remarks
R421	ERJ6ENF2702V	RES M 27K-F-1/10W	
R422	ERJ6ENF82R0V	RES M 82-F-1/10W	
R423	ERJ6ENF5601V	RES M 5.6K-F-1/10W	
R425	ERDS1FJ1R0T	RES C 1.0-J-1/2W	
R426	ERJ6ENF1502V	RES M 15K-F-1/10W	
R428	ERJ6ENF1502V	RES M 15K-F-1/10W	
R434	ERX12SJ1R8V	RES M 1.8-J-1/2W	
R435	ERX12SJ1R8V	RES M 1.8-J-1/2W	
R464	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R465	ERJ6GEYJ472V	RES M 4.7K-J-1/10W	
R466	ERJ6GEYJ562V	RES M 5.6K-J-1/10W	
R470	ERDS2TJ331T	RES C 330-J-1/4W	
R471	ERDS2TJ331T	RES C 330-J-1/4W	
R472	ERDS2TJ331T	RES C 330-J-1/4W	
R501	ERJ6GEYJ104V	RES M 100K-J-1/10W	
R502	ERJ6GEYJ680V	RES M 68-J-1/10W	
R503	ERG2FJ180H	RES M 18-J-2W	
R504	ERG3FJ271H	RES M 270-J-3W	
R505	ERG1SJ120P	RES M 12-J-1W	
R506	ERX1SJR47P	RES M .47-J-1W	
R512	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R513	ERDS2TJ471T	RES C 470-J-1/4W	
R514	EROS2THF5602	RES M 56K-F-1/4W	
R515	EROS2THF4642	RES M 45.4K 1/4W	
R516	ERJ6GEYJ101V	RES M 100-J-1/10W	
R517	EROS2THF2002	RES M 20K-F-1/4W	
R518	ERX12SJR22V	RES M .22-J-1/2W	
R519	ERQ12HKR22P	RES F .22-K-1/2W	
R520	ERQ12HJ330P	RES F 33-J-1/2W	⚠
R521	EROS2THF2612	RES M 26.1K-F-1/4W	⚠
R522	EROS2THF7151	RES M 7.15K-F-1/4W	⚠
R523	ERDS2TJ275T	RES C 2.7MEG-J-1/4W	
R524	EROS2THF2002	RES M 20K-F-1/4W	
R525	ERJ6GEYJ272V	RES M 2.7K-J-1/10W	
R534	EROS2THF1203	RES M 120K-F-1/4W	
R535	ERDS2TJ222T	RES C 2.2K-J-1/4W	
R541	ERDS2TJ563T	RES C 56K-J-1/4W	
R550	EROS2THF1002	RES M 10K-F-1/4W	
R560	ERJ6GEYJ101V	RES M 100-J-1/10W	
R561	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R562	ERJ6GEYJ104V	RES M 100K-J-1/10W	
R621	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R622	ERJ6GEYJ152V	RES M 1.5K-J-1/10W	
R624	ERJ6GEYJ101V	RES M 100-J-1/10W	
R643	ERJ6GEYJ101V	RES M 100-J-1/10W	
R653	ERDS2TJ101T	RES C 100-J-1/4W	
R654	ERDS2TJ184T	RES C 180K-J-1/4W	
R655	ERDS2TJ184T	RES C 180K-J-1/4W	
R656	ERDS2TJ124T	RES C 120K-J-1/4W	
R704	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R706	ERDS1FJ680T	RES C 68-J-1/2W	
R708	ERF5AK4R7H	RES W 4.7-K-5W	
R800	D1F53R3EA001	RES M 3.3-1/2W	⚠

Ref. No.	Part No.	Part Name & Description	Remarks
R805	ERDS2TJ101T	RES C 100-J-1/4W	
R808	ERX12SZJR12P	RES M .12-J-1/2W	
R809	ERJ6GEYJ225V	RES M 2.2M-J-1/10W	
R810	ERX12SZJR12P	RES M .12-J-1/2W	
R811	ERX12SZJR12P	RES M .12-J-1/2W	
R812	ERDS2TJ103T	RES C 10K-J-1/4W	
R813	ERDS1FJ561T	RES C 560-J-1/2W	
R814	ERDS2TJ4R7T	RES C 4.7-J-1/4W	
R815	ERJ6GEYJ301V	RES M 300-J-1/10W	
R816	ERDS2TJ471T	RES C 470-J-1/4W	
R817	ERJ6ENF2001V	RES M 2K-F-1/10W	
R818	ERDS1FJ100T	RES C 10-J-1/2W	
R820	ERDS1FJ470T	RES C 47-J-1/2W	
R822	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R832	ERD75TAJ825	RES C 8.2MEG-J-3/4W	⚠
R833	ERJ6GEYJ101V	RES M 100-J-1/10W	
R835	ERDS2TJ101T	RES C 100-J-1/4W	
R836	ERJ6GEYJ101V	RES M 100-J-1/10W	
R839	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R840	ERJ6GEYJ101V	RES M 100-J-1/10W	
R846	ERDS2TJ223T	RES C 22K-J-1/4W	
R847	ERDS2TJ272T	RES C 2.7K-J-1/4W	
R857	ERX1SJ1R0P	RES M 1.0-J-1W	
R858	ERX1SJ1R0P	RES M 1.0-J-1W	
R859	ERDS2TJ103T	RES C 10K-J-1/4W	
R860	ERDS1FJ222T	RES C 2200-J-1/2W	
R862	ERG3FJ333H	RES M 33K-J-3W	
R865	ERJ6GEYJ153V	RES M 15K-J-1/10W	
R866	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R867	ERJ6GEYJ472V	RES M 4.7K-J-1/10W	
R870	ERJ6GEYJ104V	RES M 100K-J-1/10W	
R871	ERDS2TJ272T	RES C 2.7K-J-1/4W	
R872	ERJ6GEYJ333V	RES M 33K-J-1/10W	
R873	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R874	ERJ6GEYJ102V	RES M 1K-J-1/10W / PT-47X54J	
R874	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R875	ERJ6ENF6191V	RES M 6190-F-1/10W	
R876	ERJ6ENF33R0V	RES M 33.OK-F-1/10W	
R877	ERJ6ENF1781V	RES M 1.78K-F-1/10W	
R878	ERJ6ENF1001V	RES M 1K-F-1/10W	
R879	ERJ6ENF1001V	RES M 1K-F-1/10W	
R880	ERJ6ENF1001V	RES M 1K-F-1/10W	
R881	ERDS1TJ560T	RES C 56-J-1/2W	
R882	ERJ6ENF9530V	RES M 953-F-1/10W	
R883	ERJ6ENF6340V	RES M 634-F-1/10W	
R885	ERJ6ENF1001V	RES M 1K-F-1/10W	
R886	ERJ6ENF1001V	RES M 1K-F-1/10W	
R901	ERDS2FJ122T	RES C 1.2K-J-1/2W	
R902	ERDS2TJ103T	RES C 10K-J-1/4W	
R903	ERDS2TJ683T	RES C 68K-J-1/4W	
R904	ERDS2TJ683T	RES C 68K-J-1/4W	
R905	ERDS2TJ103T	RES C 10K-J-1/4W	
R906	ERDS2TJ122T	RES C 1.2K-J-1/4W	
R907	ERDS1FVJ470T	RES C 47-J-1/2W	

[illegible]	[illegible]	[illegible]	

Ref. No.	Part No.	Part Name & Description	Remarks
R908	ERDS1FVJ470T	RES C 47-J-1/2W	
R909	ERDS1FVJ4R7T	RES C 4.7-J-1/2W	
R910	ERDS2TJ4R7T	RES C 4.7-J-1/4W	
R911	ERG3SJS221H	RES M 220-J-3W	
R912	ERDS2TJ101T	RES C 100-J-1/4W	
R913	ERDS2TJ152T	RES C 1.5K-J-1/4W	
R914	ERDS2TJ152T	RES C 1.5K-J-1/4W	
R915	ERQ14AJ220P	RES F 22-J-1/4W	
R916	ERQ14AJ220P	RES F 22-J-1/4W	
R917	ERQ14AJ100P	RES F 10-J-1/4W	
R918	ERDS2TJ472T	RES C 4.7K-J-1/4W	
R919	ERDS2TJ472T	RES C 4.7K-J-1/4W	
R920	ERDS2TJ681T	RES C 680-J-1/4W	
R921	ERDS2TJ151T	RES C 150-J-1/4W	
R925	ERDS2TJ151T	RES C 150-J-1/4W	
R926	ERDS2TJ151T	RES C 150-J-1/4W	
R928	ERQ14AJ220P	RES F 22-J-1/4W	
R929	ERDS2TJ101T	RES C 100-J-1/4W	
R940	ERDS2TJ472T	RES C 4.7K-J-1/4W	
R941	ERDS2TJ472T	RES C 4.7K-J-1/4W	
R942	ERDS2TJ152T	RES C 1.5K-J-1/4W	
R943	ERDS2TJ152T	RES C 1.5K-J-1/4W	
R944	ERDS2TJ681T	RES C 680-J-1/4W	
R945	ERDS2TJ681T	RES C 680-J-1/4W	
R946	ERQ14AJ100P	RES F 10-J-1/4W	
R947	ERQ14AJ220P	RES F 22-J-1/4W	
R948	ERDS2FJ122T	RES C 1.2K-J-1/2W	
R949	ERDS2TJ103T	RES C 10K-J-1/4W	
R950	ERDS2TJ683T	RES C 68K-J-1/4W	
R951	ERDS2TJ683T	RES C 68K-J-1/4W	
R952	ERDS2TJ103T	RES C 10K-J-1/4W	
R953	ERDS2TJ122T	RES C 1.2K-J-1/4W	
R954	ERDS1FVJ470T	RES C 47-J-1/2W	
R955	ERDS1FVJ470T	RES C 47-J-1/2W	
R956	ERDS1FVJ4R7T	RES C 4.7-J-1/2W	
R957	ERDS2TJ4R7T	RES C 4.7-J-1/4W	
R958	ERG3SJS221H	RES M 220-J-3W	
R959	ERDS2TJ681T	RES C 680-J-1/4W	
R961	ERDS2FJ122T	RES C 1.2K-J-1/2W	
R962	ERDS2TJ103T	RES C 10K-J-1/4W	
R963	ERDS2TJ683T	RES C 68K-J-1/4W	
R964	ERDS2TJ683T	RES C 68K-J-1/4W	
R965	ERDS2TJ103T	RES C 10K-J-1/4W	
R966	ERDS2TJ122T	RES C 1.2K-J-1/4W	
R967	ERDS1FVJ470T	RES C 47-J-1/2W	
R968	ERDS1FVJ470T	RES C 47-J-1/2W	
R969	ERDS1FVJ4R7T	RES C 4.7-J-1/2W	
R970	ERDS2TJ4R7T	RES C 4.7-J-1/4W	
R971	ERG3SJS221H	RES M 220-J-3W	
R972	ERDS2TJ101T	RES C 100-J-1/4W	
R973	ERDS2TJ152T	RES C 1.5K-J-1/4W	
R974	ERDS2TJ152T	RES C 1.5K-J-1/4W	
R975	ERQ14AJ100P	RES F 10-J-1/4W	
R976	ERQ14AJ220P	RES F 22-J-1/4W	

Ref. No.	Part No.	Part Name & Description	Remarks
R977	ERDS2TJ151T	RES C 150-J-1/4W	
R978	ERQ14AJ220P	RES F 22-J-1/4W	
R979	ERDS2TJ472T	RES C 4.7K-J-1/4W	
R980	ERDS2TJ472T	RES C 4.7K-J-1/4W	
R981	ERDS2TJ681T	RES C 680-J-1/4W	
R1322	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1323	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1324	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1325	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1326	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1327	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1329	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1330	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1331	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1332	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1338	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R1502	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R1503	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R1504	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R1505	EROS2THF1331	RES M 1.33K-F-1/4W	
R1506	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R1507	ERG3SJD152L	RES M 1.5K-J-3W	
R1508	ERJ6GEYJ152V	RES M 1.5K-J-1/10W	
R1508	ERJ6GEYJ242V	RES M 2.4K-J-1/10W	
R1509	ERDS2TJ102T	RES C 1K-J-1/4W	
R1510	ERG2SJD333L	RES M 33K-J-2W	
R1511	ERG2SJD333L	RES M 33K-J-2W	
R1512	ERJ6ENF2201V	RES M 2.2K-F-1/10W	
R1514	ERG2SJD333L	RES M 33K-J-2W	
R1515	ERJ6ENF1001V	RES M 1K-F-1/10W	
R1516	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1517	ERJ6ENF3571V	RES M 3.57K-F-1/10W	
R1518	ERG2SJD333L	RES M 33K-J-2W	
R1519	ERDS2TJ101T	RES C 100-J-1/4W	
R1520	ERDS2TJ221T	RES C 220-J-1/4W	
R1521	EROS2THF1500	RES M 150-F-1/4W	
R1522	ERC12GK103D	RES C 10K-K-1/2W	
R1523	ERDS2TJ104T	RES C 100K-J-1/4W	
R1524	EROS2THF1401	RES M 1.4K-F-1/4W	
R1527	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R1528	ERDS2TJ332T	RES C 3.3K-J-1/4W	
R1529	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R1532	ERJ6ENF2201V	RES M 2.2K-F-1/10W	
R1542	ERG2SJD333L	RES M 33K-J-2W	
R1544	ERJ6GEYJ471V	RES M 470-J-1/10W	
R1546	ERJ6GEYJ221V	RES M 220-J-1/10W	
R1599	ERJ6ENF9761V	RES M 9760-F-1/10W	
R2201	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R2202	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2203	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2204	ERJ6GEYJ101V	RES M 100-J-1/10W	
R2301	ERJ6GEYJ472V	RES M 4.7K-J-1/10W / PT-53TW54J	
R2302	ERJ6GEYJ472V	RES M 4.7K-J-1/10W	
R2305	ERJ6ENF1201V	RES M 1.2K-F-1/10W / PT-53TW54J	

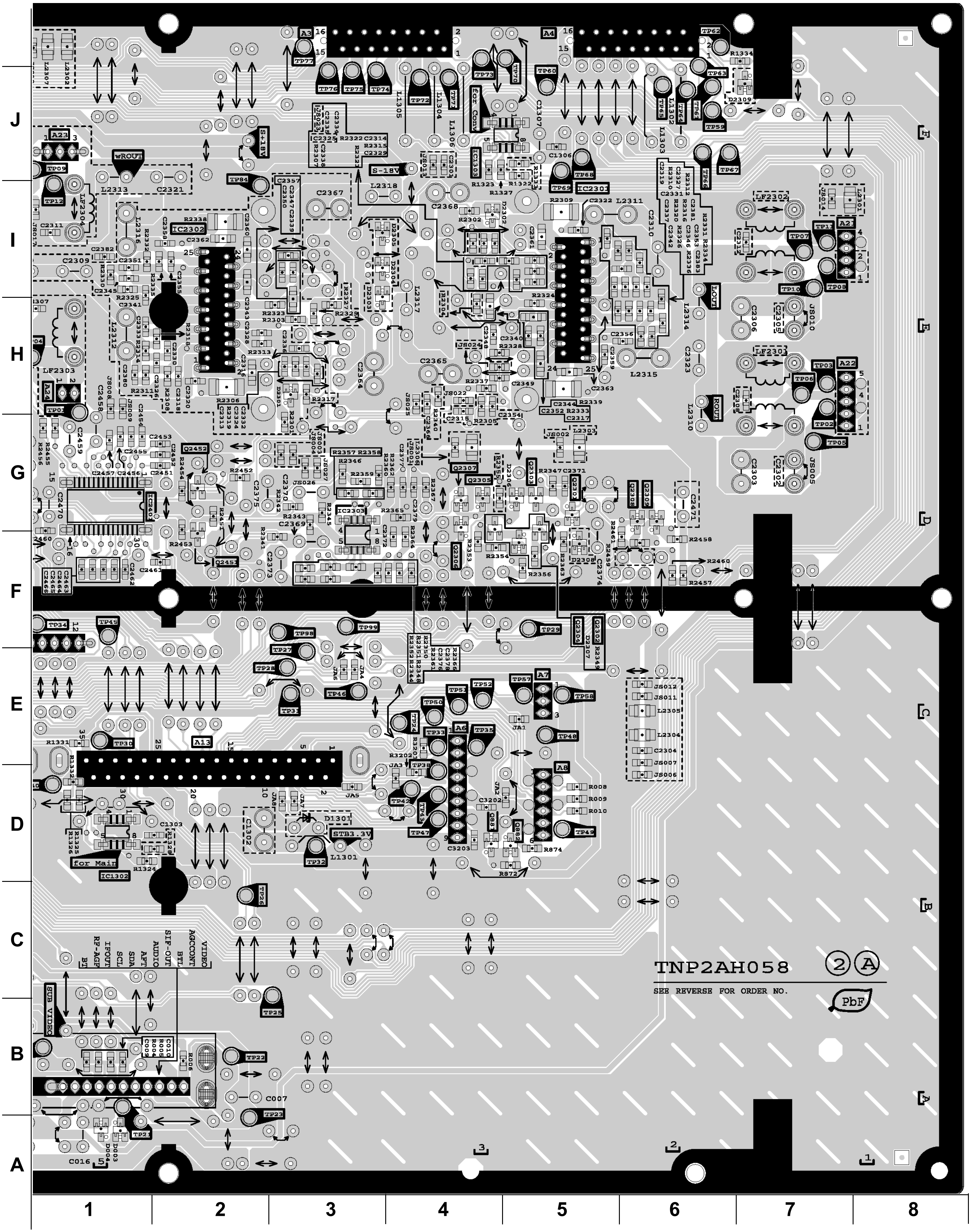
Ref. No.	Part No.	Part Name & Description	Remarks
R2306	ERJ12YJ101U	RES M 100-J-1/2W / PT-53TW54J	
R2307	ERJ6ENF1001V	RES M 1K-F-1/10W / PT-53TW54J	
R2307	ERJ6ENF1501V	RES M 1.5K-F-1/10W / PT-47X54J	
R2308	ERJ6ENF5362V	RES M 53.6K-F-1/10W PT-53TW54J	
R2309	ERJ12YJ101U	RES M 100-J-1/2W	
R2310	ERJ6ENF5232V	RES M 5.32K-F-1/10W / PT-47X54J	
R2310	ERJ6ENF5362V	RES M 53.6K-F-1/10W	
R2311	ERJ6ENF5601V	RES M 5.6K-F-1/10W / PT-53TW54J	
R2312	ERDS2TJ472T	RES C 4.7K-J-1/4W / PT-47X54J	
R2312	ERJ6ENF5601V	RES M 5.6K-F-1/10W / PT-53TW54J	
R2313	ERJ6GEYJ103V	RES M 10K-J-1/10W / PT-53TW54J	
R2314	ERJ6GEYJ683V	RES M 68K-J-1/10W / PT-53TW54J	
R2315	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R2316	ERJ6GEYJ683V	RES M 68K-J-1/10W	
R2317	ERJ6ENF1201V	RES M 1.2K-F-1/10W / PT-53TW54J	
R2318	ERJ6GEYJ223V	RES M 22K-J-1/10W / PT-53TW54J	
R2319	ERJ6ENF1202V	RES.M 1.2K-F-1/10W / PT-53TW54J	
R2320	ERJ6GEYJ223V	RES M 22K-J-1/10W	
R2321	ERJ6ENF1202V	RES.M 1.2K-F-1/10W	
R2322	ERJ6ENF1202V	RES.M 1.2K-F-1/10W	
R2323	ERJ6ENF1303V	RES M 130K-F-1/10W / PT-53TW54J	
R2324	ERJ6ENF1303V	RES M 130K-F-1/10W	
R2325	ERJ6GEYJ223V	RES M 22K-J-1/10W / PT-53TW54J	
R2326	ERJ6GEYJ223V	RES M 22K-J-1/10W	
R2327	ERJ6ENF1202V	RES.M 1.2K-F-1/10W / PT-53TW54J	
R2328	ERJ6ENF1202V	RES.M 1.2K-F-1/10W	
R2329	ERJ6ENF1201V	RES M 1.2K-F-1/10W / PT-53TW54J	
R2330	ERJ6GEYJ683V	RES M 68K-J-1/10W / PT-53TW54J	
R2331	ERJ6GEYJ683V	RES M 68K-J-1/10W	
R2332	ERJ6ENF5601V	RES M 5.6K-F-1/10W / PT-53TW54J	
R2333	ERJ6ENF1202V	RES.M 1.2K-F-1/10W	
R2334	ERDS2TJ472T	RES C 4.7K-J-1/4W / PT-47X54J	
R2334	ERJ6ENF5601V	RES M 5.6K-F-1/10W / PT-53TW54J	
R2335	ERJ6ENF5362V	RES M 53.6K-F-1/10W / PT-53TW54J	
R2336	ERJ6ENF5232V	RES M 5.32K-F-1/10W / PT-47X54J	
R2336	ERJ6ENF5362V	RES M 53.6K-F-1/10W PT-53TW54J	
R2337	ERJ6ENF1001V	RES M 1K-F-1/10W / PT-53TW54J	
R2337	ERJ6ENF1501V	RES M 1.5K-F-1/10W / PT-47X54J	
R2338	ERJ12YJ101U	RES M 100-J-1/2W / PT-53TW54J	
R2339	ERJ12YJ101U	RES M 100-J-1/2W	
R2340	ERJ6ENF1201V	RES M 1.2K-F-1/10W / PT-53TW54J	
R2341	ERJ6GEYJ122V	RES M 1.2K-J-1/10W	
R2342	ERJ6GEYJ122V	RES M 1.2K-J-1/10W	
R2343	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R2344	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R2345	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R2346	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R2347	ERJ6GEYJ473V	RES M 47K-J-1/10W	
R2348	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R2349	ERJ6GEYJ271V	RES M 270-J-1/10W	
R2350	ERJ6GEYJ273V	RES M 27K-J-1/10W	
R2351	ERJ6GEYJ472V	RES M 4.7K-J-1/10W	
R2352	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	

Ref. No.	Part No.	Part Name & Description	Remarks
R2353	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2354	ERJ6GEYJ392V	RES M 3.9K-J-1/10W	
R2356	ERJ6GEYJ183V	RES M 18K-J-1/10W	
R2357	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R2358	ERJ6GEYJ273V	RES M 27K-J-1/10W	
R2359	ERJ6GEYJ472V	RES M 4.7K-J-1/10W	
R2360	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R2361	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2362	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2363	ERJ6GEYJ223V	RES M 22K-J-1/10W	
R2364	ERJ6GEYJ473V	RES M 47K-J-1/10W	
R2365	ERJ6GEYJ473V	RES M 47K-J-1/10W	
R2366	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2367	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2378	ERJ6ENF1501V	RES M 1.5K-F-1/10W / PT-47X54J	
R2380	ERJ6GEYJ392V	RES M 3.9K-J-1/10W / PT-47X54J	
R2391	ERJ6GEYJ392V	RES M 3.9K-J-1/10W / PT-47X54J	
R2420	ERJ6GEYJ392V	RES M 3.9K-J-1/10W / PT-47X54J	
R2432	ERJ6ENF1501V	RES M 1.5K-F-1/10W / PT-47X54J	
R2434	ERJ6GEYJ392V	RES M 3.9K-J-1/10W / PT-47X54J	
R2451	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2452	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2453	ERJ6GEYJ681V	RES M 680-J-1/10W	
R2454	ERJ6GEYJ681V	RES M 680-J-1/10W	
R2455	ERJ6GEYJ101V	RES M 100-J-1/10W	
R2456	ERJ6GEYJ101V	RES M 100-J-1/10W	
R2457	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R2458	ERJ6GEYJ682V	RES M 6.8K-J-1/10W	
R2459	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R2460	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R2461	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R3201	ERJ6GEYJ750V	RES M 75-J-1/10W	
R3202	ERJ6GEYJ750V	RES M 75-J-1/10W	
R3301	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3302	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3303	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3304	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3305	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3306	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3307	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3308	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3309	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3310	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3311	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3312	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3313	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3314	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R3315	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3316	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3317	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3318	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3319	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3320	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R3321	ERJ6GEYJ184V	RES M 180K-J-1/10W	

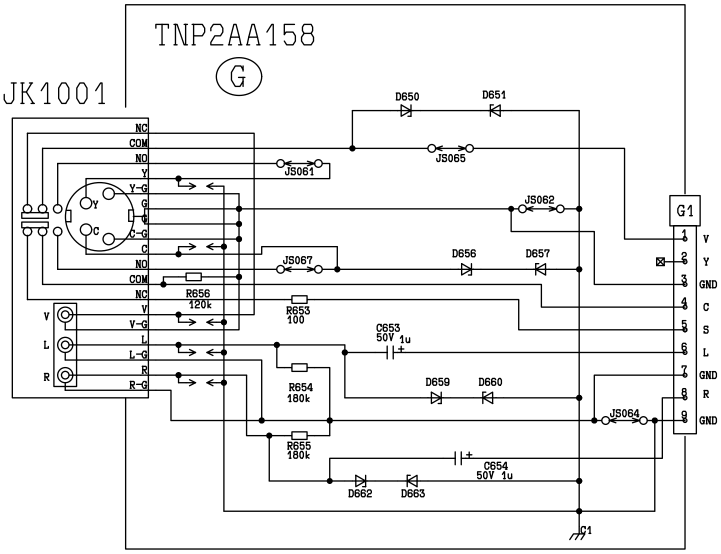
Ref. No.	Part No.	Part Name & Description	Remarks
R3322	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3323	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3324	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3326	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3327	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3328	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R7001	ERG2FJ820H	RES M 82-J-2W	
R7002	ERG2FJ121H	RES M 120-J-2W	
R7003	ERG2FJ820H	RES M 82-J-2W	
R7004	ERG2FJ121H	RES M 120-J-2W	
R7005	ERG2FJ820H	RES M 82-J-2W	
R7006	ERG2FJ121H	RES M 120-J-2W	
R7011	ERX2FJ2R2H	RES M 2.2-J-2W	
R7012	ERX2FJ2R2H	RES M 2.2-J-2W	
R7013	ERX2FJ2R2H	RES M 2.2-J-2W	
R7014	ERX2FJ2R2H	RES M 2.2-J-2W	
R7015	ERX2FJ2R2H	RES M 2.2-J-2W	
R7016	ERX2FJ2R2H	RES M 2.2-J-2W	
R7023	ERJ6GEYJ273V	RES M 27K-J-1/10W	
R7024	ERJ6GEYJ472V	RES M 4.7K-J-1/10W	
R7026	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R7027	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R7029	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R7030	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R7031	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R7032	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R7034	ERJ6GEYJ273V	RES M 27K-J-1/10W	
R7035	ERJ6GEYJ472V	RES M 4.7K-J-1/10W	
R7036	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R7037	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R7038	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R7040	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R7041	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R7045	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R7046	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R7047	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R7048	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R7052	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R7055	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R7058	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R7059	ERJ6GEYJ104V	RES M 100K-J-1/10W	
R7060	ERX1SJR27P	RES M .27-J-1W	
R7061	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R7062	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R7063	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R7064	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R7065	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R7066	ERX1SJR27P	RES M .27-J-1W	
		SWITCHES	
SW080	EVQPBD05R	SWITCH	
SW081	EVQPBD05R	SWITCH	
SW082	EVQPBD05R	SWITCH	
SW083	EVQPBD05R	SWITCH	
SW084	EVQPBD05R	SWITCH	

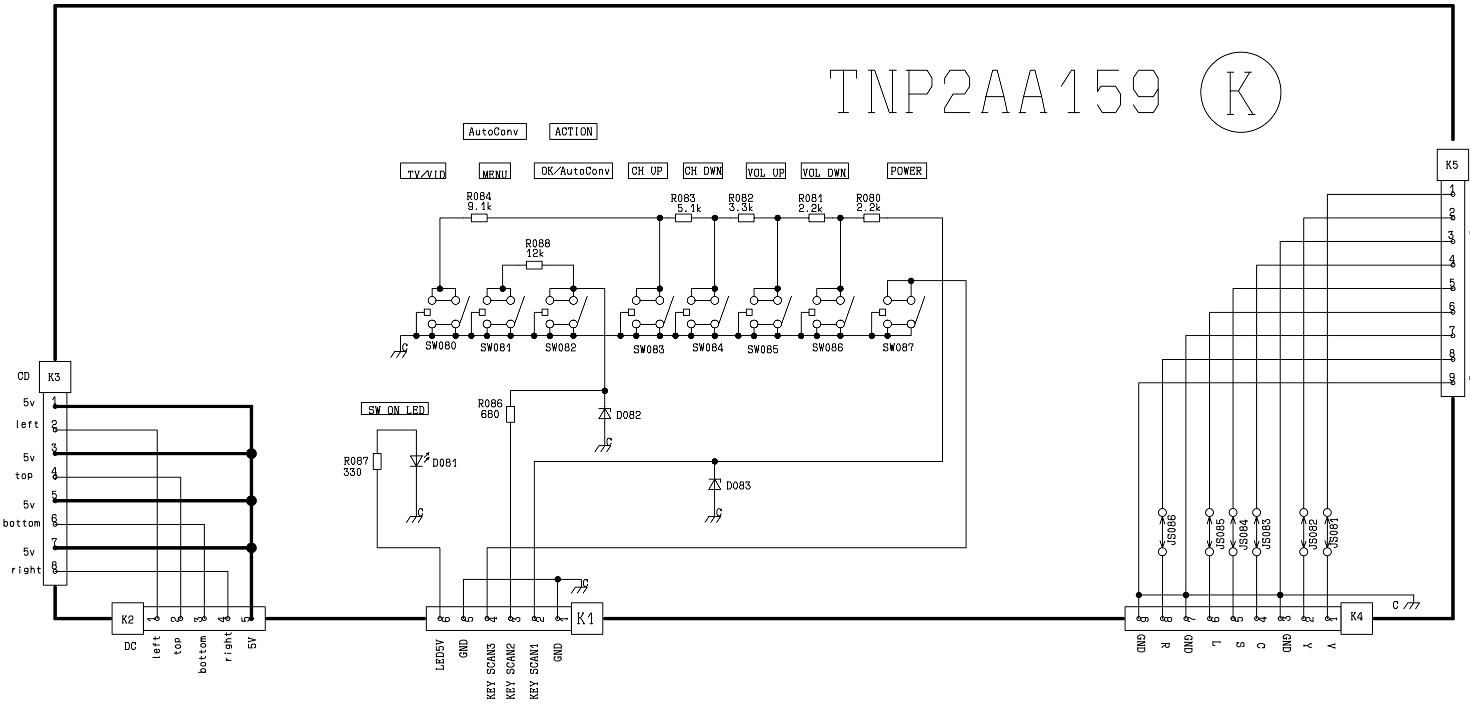
Ref. No.	Part No.	Part Name & Description	Remarks
SW085	EVQPBD05R	SWITCH	
SW086	EVQPBD05R	SWITCH	
SW087	EVQPBD05R	SWITCH	
SW088	EVQPBD05R	SWITCH / PT-47X54J	
TRANSFORMERS			
T501	ETH19K204AZ	TRANSFORMER	
T551	TLF2AA009	TRANSFORMER FLYBACK	⚠
T801	ETS42AD495AD	TRANSFORMER	⚠
T802	ETP30KB941JG	TRANSFORMER	⚠
CRYSTALS / FILTERS			
X1101	H0J400400025	CRYSTAL 4MHZ	
X4201	H0J202500011	CRYSTAL 20.2MHZ	
OTHERS			
TU001	ENGF6302GF	TUNER	⚠
TU002	ENG36A08GF	SUB-TUNER	⚠
M001	TSX2AA0421	AC LINE CORD	⚠
1	TXFCRT41JSER	CRT (BLUE) / PT-47X54J	
	TXFCRT42JSER	CRT (GREEN) / PT-47X54J	
	TXFCRT43JSER	CRT (RED) / PT-47X54J	
	TXFCRT44JSER	CRT(BLUE) / PT-53TW54J	
	TXFCRT45JSER	CRT(GREEN) / PT-53TW54J	
	TXFCRT46JSER	CRT(RED) / PT-53TW54J	
M002	TJS2AC0051	CRT SOCKET	
2	KDY2ASF83F	DEFLECTION YOKE / PT-47X54J	⚠
M003	TXF3A01ECV	DAG GROUND	
3	TKG2AF020-1	A/B LENS / PT-47X54J	
	TKG2AF029	A/B LENS / PT-53TW54J	
4	TKG2AA50091	MIRROR GLASS / PT-47X54J	
	TKG2AA50121	MIRROR GLASS / PT-53TW54J	
5	TMW2AX0041B	MIRROR BRACKET (SIDE)	
6	TMW2AX0161	MIRROR BRACKET (TOP)	
M005	TKE2AA01002S	SCREEN FRAME / PT-47X54J	
M006	TKP2AA1142S	SCREEN FRAME COVER / PT-47X54J	
M007	TKG2AD00141	PROTECTIVE SCREEN 47” / PT-47X54J	
M008	TKG2AH50461	LENTICULAR SCREEN 47” / PT-47X54J	
M009	TKG2AH50681	SCREEN FRESNEL 47” / PT-47X54J	
7	TKG2AH50641	PROTECTIVE LENTICULAR SCREEN / PT-53TW54J	
8	TKG2AH50631	FRESNEL SCREEN / PT-53TW54J	
9	TKZ2AM50041D	SCREEN BRACKET / PT-53TW54J	
	TKZ2AM50181A	SCREEN BRACKET / PT-53TW54J	
10	TKY2AA3903S	CABINET FRONT / PT-53TW54J	
11	TKB2AA0231S	WOOD CABINET / PT-53TW54J	
M010	TKX2AA0221S	PLASTIC BASE / PT-47X54J	
12	TKU2AA03601	CABINET BACK LOWER / PT-53TW54J	
13	TKU2AA04002	BACK COVER (MIDDLE) / PT-53TW54J	
14	TKU2AC3101S	CABINET BACK / PT-53TW54J	
M011	TKU2AC4201S	LOWER BACK CABINET / PT-47X54J	
15	TKD2AX2831S	INNER BOARD / PT-47X54J	
16	EASG5PH508A2	SPEAKER (TWEETER) / PT-53TW54J	
	EAST6PH08P6	SPEAKER TWEETER / PT-47X54J	
17	EASG8P533A2	SPEAKER (MIDRANGE) / PT-53TW54J	

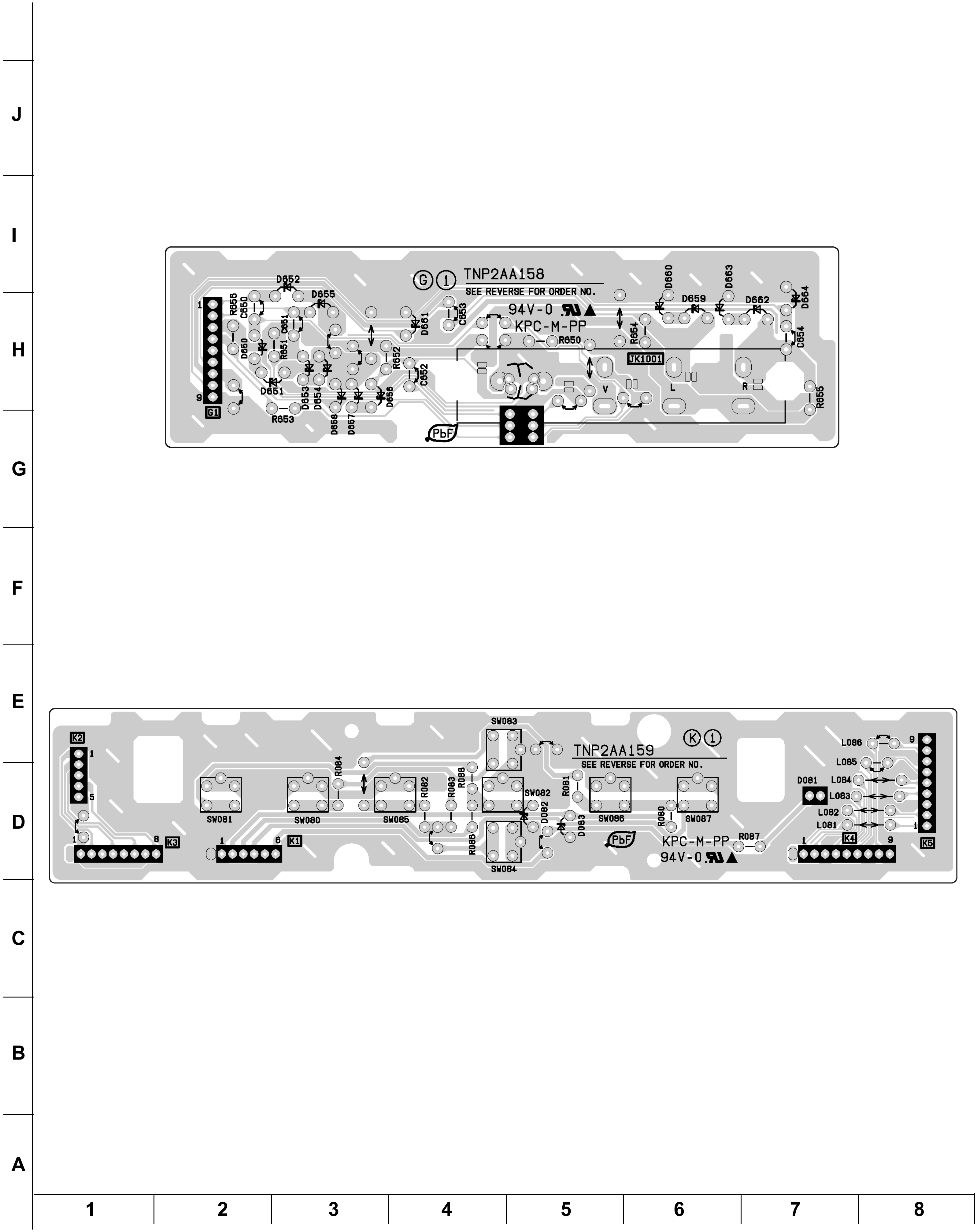
Ref. No.	Part No.	Part Name & Description	Remarks
18	EASG16P559A2	SPEAKER (WOOFER) / PT-53TW54J	
	EAST16P51A6	SPEAKER (WOOFER) / PT-47X54J	
19	TKP2AA1162S	SPEAKER GRILLE / PT-47X54J	
	TKP2AA0793S	SPEAKER GRILLE / PT-53TW54J	
M012	TKP2AA1101S	SPEAKER BASE COVER / PT-47X54J	
20	TLH2AH001	DISTRIBUTOR	⚠
21	D9ZZ00000079	FOCUS PACK	⚠
22	TXFKP08JSER	A/V REAR COVER	
23	TKD2AX5011S	FRONT BOARD PT-47X54J	
	TKD2AX0271S	FRONT BOARD / PT-53TW54J	
24	TXFKP12JSER	CONTROL PANEL / PT-53TW54J	
M013	TKP2AA1152S	FRONT COVER / PT-47X54J	
25	TXFKP06JSER	A/V POCKET / PT-53TW54J	
M014	TKP2AA0813S	PLASTIC DOOR / PT-53TW54J	
M015	TEK6935	LATCH / PT-53TW54J	
M016	TBX2AA0241	DISC BUTTON / PT-47X54J	
M017	TBX2AA0271	5-KEY BUTTON / PT-47X54J	
26	TBX2AA2701	7-KEY BUTTON / PT-53TW54J	
27	TKP2AA0801	LED PANEL / PT-53TW54J	
	TKP2AA1131	LED PANEL / PT-47X54J	
M018	TKP2AA1361S	SIDE RIGHT PANEL / PT-47X54J	
M019	TKP2AA1362S	SIDE LEFT PANEL / PT-47X54J	
M020	TMM2AE10171	GROMMET SQUARE	
M021	TXFKP07JSER	TOP SHELF / PT-47X54J	
M022	TBL2AH30071	CASTER / PT-53TW54J	
RM002	PNA4701M05TV	IR REMOTE CONTROL RECEPTOR	
SN7201	B3HA00000037	PHOTO DETECTOR (AUTO CONV.)	
JK1001	TJB2AA0481	TERMINAL A/V FRONT / PT-53TW54J	
JK1001	TJB2AA0482	TERMINAL A/V FRONT / PT-47X54J	
JK3301	TJB2AA0521	TERMINAL A/V	
JK3302A	TJB2AA0532	TERMINAL A/V	
JK5001	K1FA119E0001	CONNECTOR	
OTHER ACCESSORIES			
M023	TQB2AA0506	OWNER’S MANUAL	
M024	EUR7603ZF0	REMOTE CONTROL	
M025	EUR7603ZFA	REMOTE CONTROL	
M026	UR76EC0303E	BATTERY COVER(REMOTE CONTROL / EUR7603ZF0 & EUR7603ZFA	

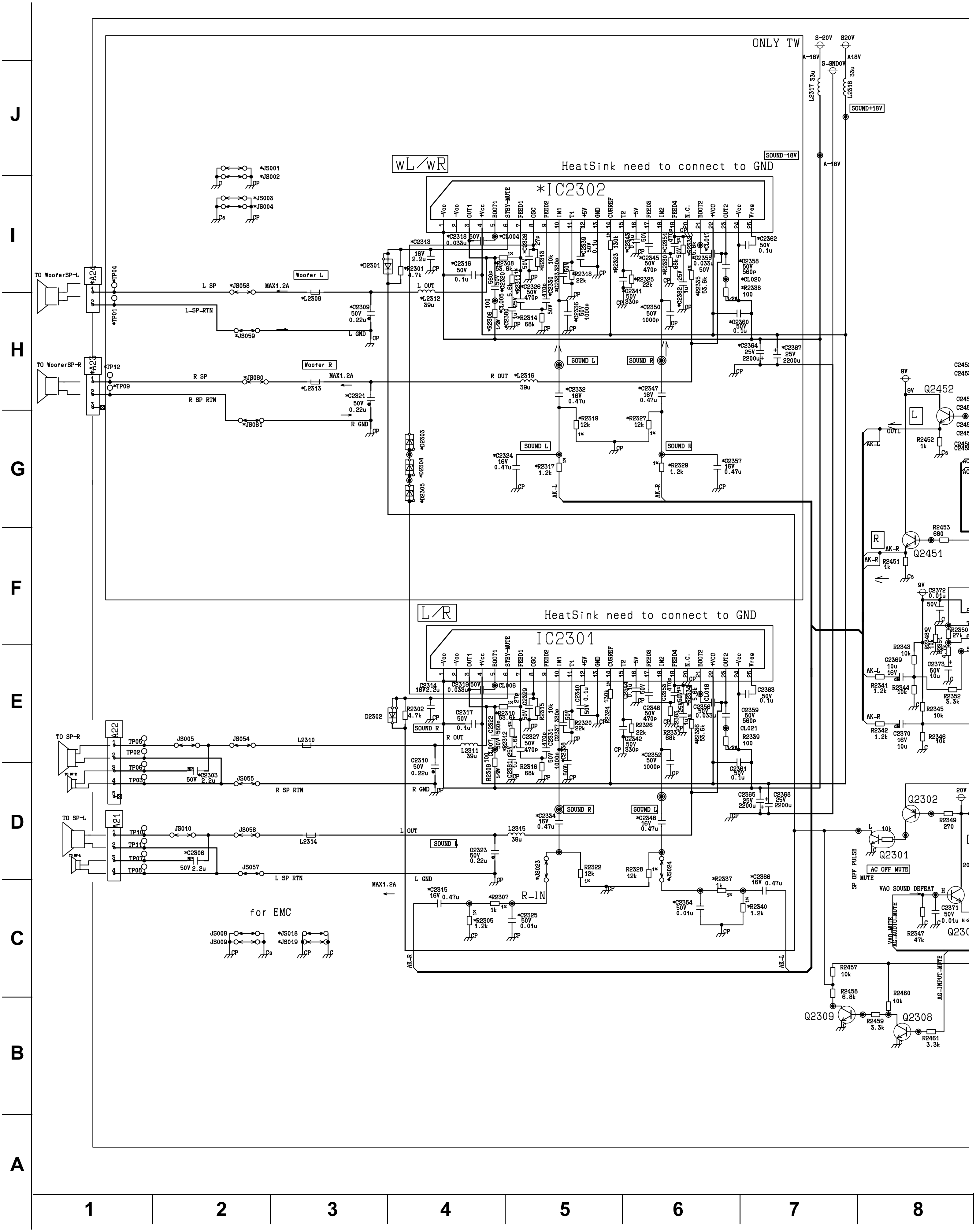


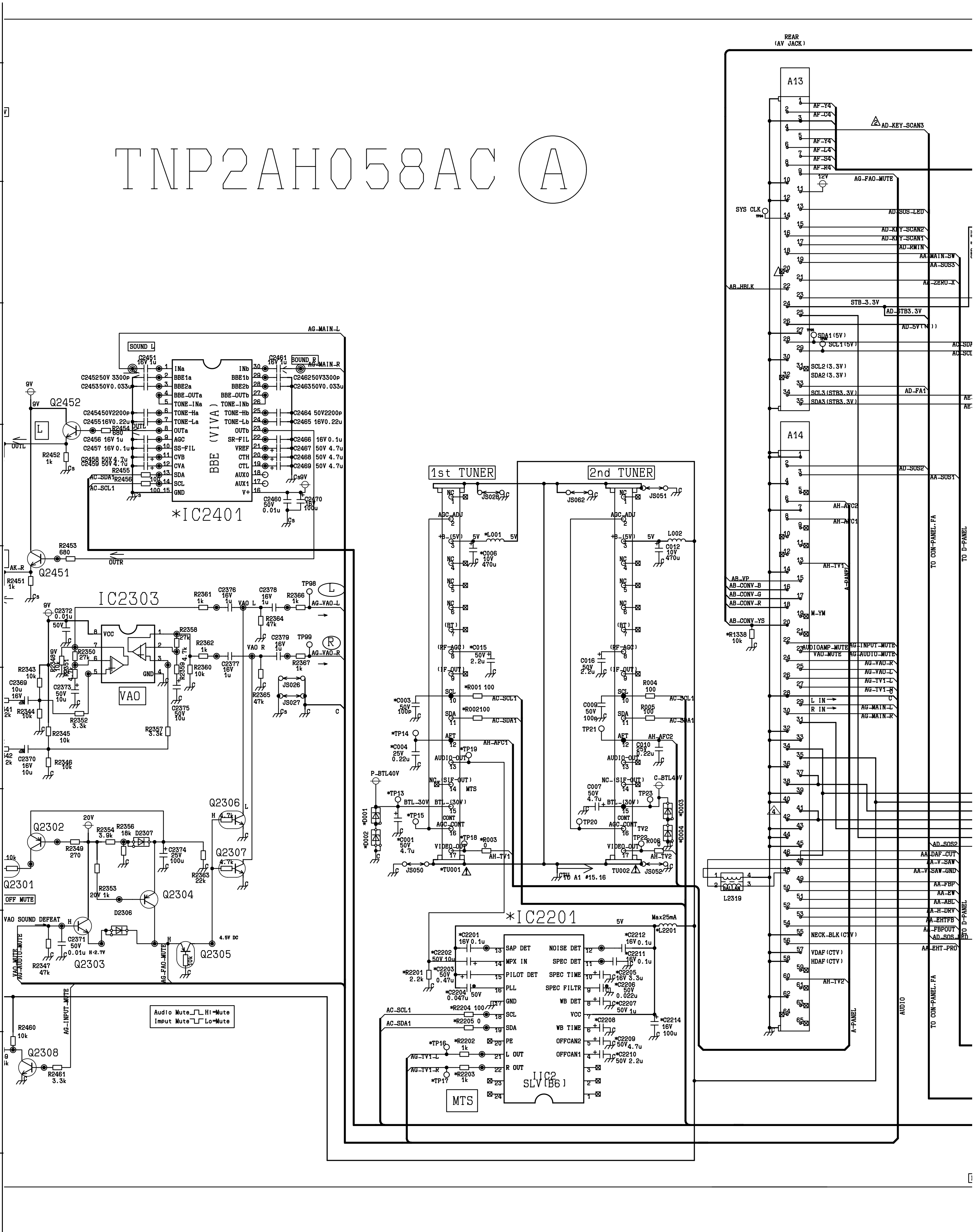
TNP2AH058
2
A
SEE REVERSE FOR ORDER NO.
PbF
A3
A4
A6
A7
A8
A13
A21
A22
A23
A24
IC2301
IC2302
IC2303
IC2401
IC1302
IC1303
S+18V
S-18V
wROUT
LOUT
ROUT
STB3.3V
for Main
For Conv
SUB VIDEO
VIDEO
AGCCONT
BTL
SIF-OUT
AUDIO
AFT
SDA
SCL
IFOUT
RF-AGF
BT
LF2301
LF2302
LF2303
LF2304
D1301
L1301
TP02
TP03
TP05
TP06
TP07
TP08
TP09
TP10
TP12
TP17
TP21
TP22
TP23
TP24
TP25
TP26
TP27
TP28
TP29
TP30
TP31
TP32
TP33
TP34
TP35
TP38
TP42
TP43
TP45
TP46
TP47
TP48
TP49
TP50
TP51
TP52
TP57
TP58
TP59
TP60
TP62
TP63
TP65
TP66
TP67
TP68
TP70
TP72
TP73
TP74
TP75
TP76
TP77
TP84
TP98
TP99
J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8

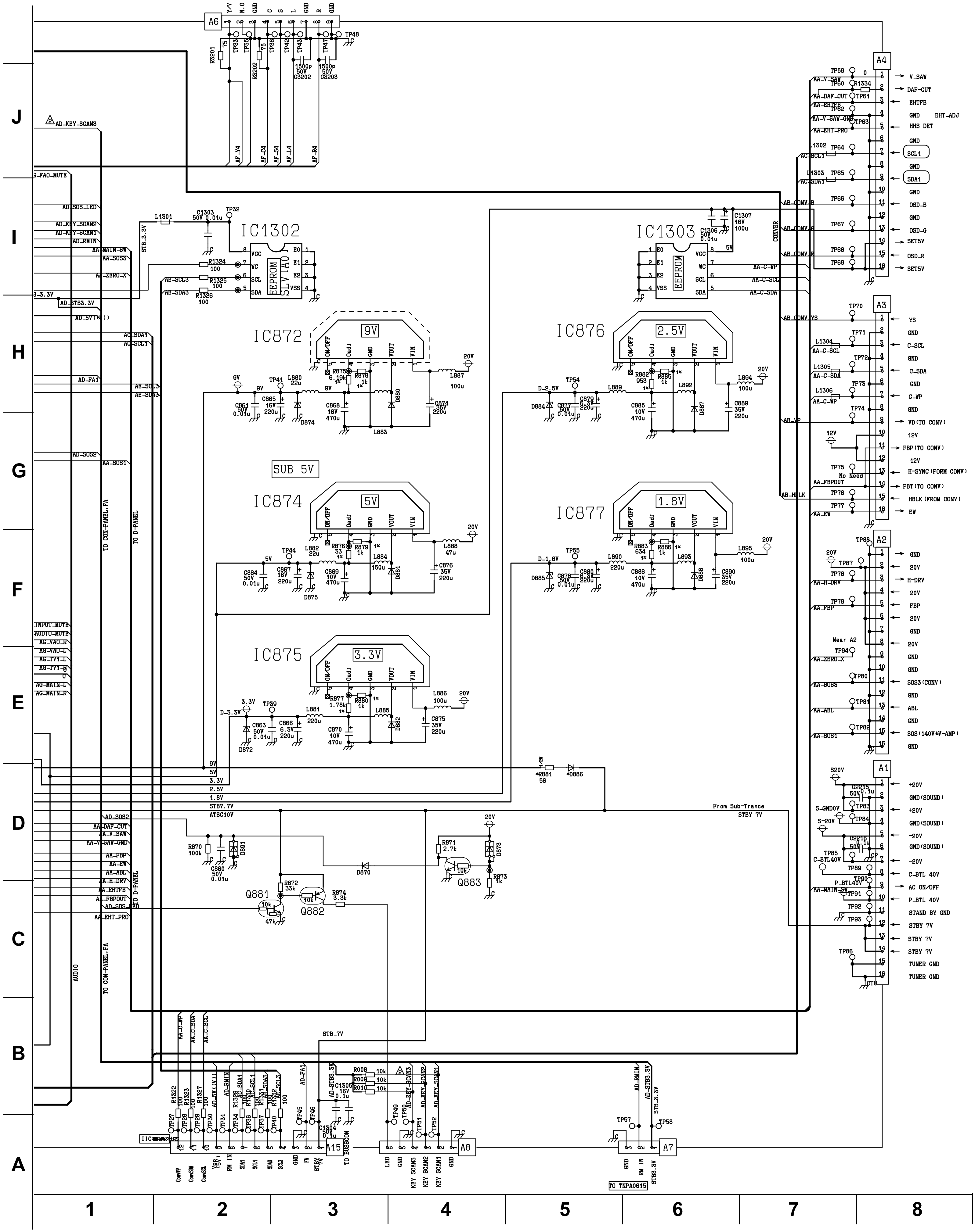

TNP2AA158
G
JK1001
NC
COM
NO
Y
Y-G
G
G
C-G
C
NO
COM
NC
V
V-G
L
L-G
R
R-G
V
L
R
D650
D651
JS061
JS065
JS062
JS067
D656
D657
R656
120k
R653
100
C653
50V 1u
R654
180k
D659
D660
JS064
R655
180k
C654
50V 1u
D662
D663
G1
C1
V
Y
GND
C
S
L
GND
R
GND


TNP2AA159
K
AutoConv
ACTION
TV/VID
MENU
OK/AutoConv
CH UP
CH DWN
VOL UP
VOL DWN
POWER
R084
9.1k
R088
12k
R083
5.1k
R082
3.3k
R081
2.2k
R080
2.2k
SW080
SW081
SW082
SW083
SW084
SW085
SW086
SW087
SW ON LED
R087
330
D081
R086
680
D082
D083
CD
K3
5v
left
5v
top
5v
bottom
5v
right
K2
DC
left
top
bottom
right
5V
K1
LED5V
GND
KEY SCAN3
KEY SCAN2
KEY SCAN1
GND
K5
V
Y
GND
C
S
L
GND
R
GND
JS086
JS085
JS084
JS083
JS082
JS081
K4
GND
R
GND
L
S
C
GND
Y
V
C

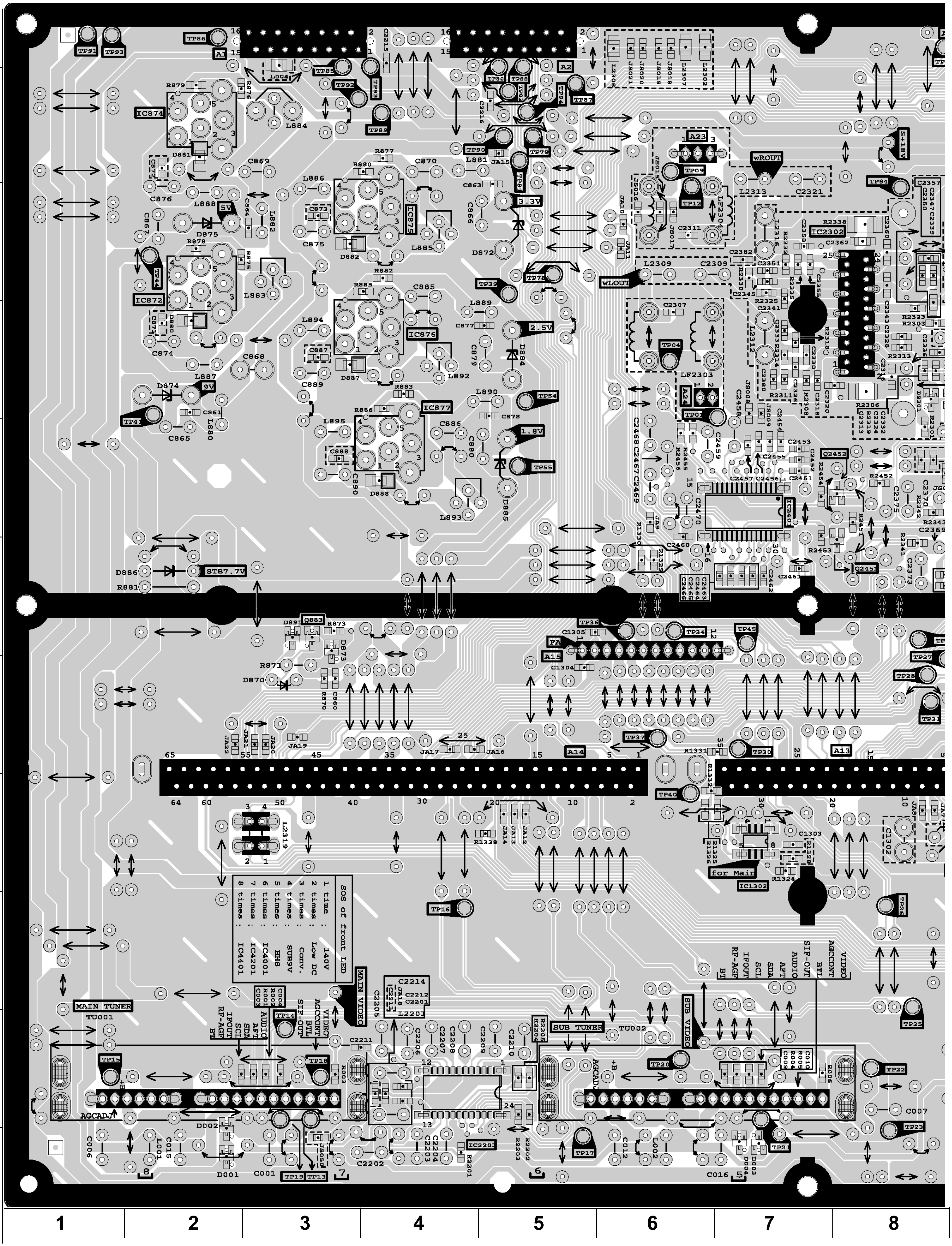

J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
G 1
TNP2AA158
SEE REVERSE FOR ORDER NO.
94V-0
KPC-M-PP
G1
1
9
R656
C650
D652
D655
D650
R651
C651
D651
R653
D653
D654
D658
D657
D656
R652
C652
D661
C653
R650
R654
D660
D659
D663
D662
D664
C654
JK1001
V
L
R
R655
PbF
K 1
TNP2AA159
SEE REVERSE FOR ORDER NO.
KPC-M-PP
94V-0
K2
1
5
K3
8
K1
6
SW081
SW080
R084
SW085
R082
R083
R088
SW083
SW082
D082
R086
SW084
R081
D083
SW086
R080
SW087
R087
PbF
D081
L086
L085
L084
L083
L082
L081
K4
9
K5


ONLY TW
wL/wR
HeatSink need to connect to GND
*IC2302
SOUND-18V
SOUND+18V
S-20V
S20V
A-18V
A18V
S-GND0V
L2317 33u
L2318 33u
TO WooferSP-L
TO WooferSP-R
*A24
*A23
Woofer L
Woofer R
L SP
L-SP-RTN
L GND
R SP
R SP RTN
R GND
MAX1.2A
L OUT
R OUT
SOUND L
SOUND R
AK-L
AK-R
L/R
IC2301
TO SP-R
TO SP-L
A22
A21
for EMC
R-IN
Q2452
Q2451
Q2302
Q2301
Q2309
Q2308
AC OFF MUTE
SP OFF PULSE
VAO SOUND DEFEAT
VAO-MUTE
AG-AUDIO-MUTE
AG-INPUT-MUTE
OUTL
J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8

TNP2AH058AC Ⓐ
J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
REAR (AV JACK)
A13
A14
AD-KEY-SCAN3
AG-FAO-MUTE
SYS CLK
AD-SOS-LED
AD-KEY-SCAN2
AD-KEY-SCAN1
AD-RMIN
AA-MAIN-SW
AA-SOS3
AA-ZERO-X
AB-HBLK
STB-3.3V
AD-STB3.3V
AD-5V
SDA1(5V)
SCL1(5V)
SCL2(3.3V)
SDA2(3.3V)
SCL3(STB3.3V)
SDA3(STB3.3V)
AD-FA1
AD-SOS2
AA-SOS1
AH-AFC2
AH-AFC1
AH-TV1
AB-VP
AB-CONV-B
AB-CONV-G
AB-CONV-R
AB-CONV-YS
M-YM
AUDIOAMP-MUTE
VAO-MUTE
AG-INPUT-MUTE
AG-AUDIO-MUTE
AG-VAO-R
AG-VAO-L
AG-TV1-R
AG-TV1-L
L IN
R IN
AG-MAIN-L
AG-MAIN-R
L2319
BALLAN
AD-SOS2
AA-DAF-CUT
AA-V-SAW
AA-V-SAW-GND
AA-FBP
AA-EW
AA-ABL
AA-H-DRV
AA-EHTFB
AA-FBPOUT
AD-SOS-LED
AA-EHT-PRO
NECK-BLK(CTV)
VDAF(CTV)
HDAF(CTV)
AH-TV2
TO CON-PANEL.FA
TO D-PANEL
A-PANEL
AUDIO
1st TUNER
2nd TUNER
TU001
TU002
AGC-ADJ
+B-(5V)
NC
(BT)
(RF-AGC)
(IF-OUT)
SCL
SDA
AFT
AUDIO-OUT
NC-(SIF-OUT)
MTS
BTL-(30V)
CONT AGC-CONT
VIDEO-OUT
L001
L002
C006 10V 470u
C012 10V 470u
C015 50V 2.2u
C016 50V 2.2u
R001 100
R002 100
R004 100
R005 100
AC-SCL1
AC-SDA1
AH-AFC1
AH-AFC2
C003 50V 100p
C009 50V 100p
TP14
TP19
TP21
C004 25V 0.22u
C010 25V 0.22u
P-BTL40V
C-BTL40V
TP13
TP15
TP18
TP20
TP22
TP23
BTL-30V
D001
D002
D003
D004
C001 50V 4.7u
C007 50V 4.7u
R003 0
R006 0
AH-TV1
AH-TV2
TV2
JS050
JS051
JS052
JS028
JS062
CTV
TO A1 #15.16
*IC2201
SAP DET
MPX IN
PILOT DET
PLL
GND
SCL
SDA
PE
L OUT
R OUT
NOISE DET
SPEC DET
SPEC TIME
SPEC FILTR
WB DET
VCC
WB TIME
OFFCAN2
OFFCAN1
IIC2 SLV[B6]
MTS
5V
Max25mA
L2201
C2201 16V 0.1u
C2202 50V 10u
C2203 50V 0.47u
C2204 0.047u 50V
C2205 16V 3.3u
C2206 50V 0.022u
C2207 50V 1u
C2208
C2209 50V 4.7u
C2210 50V 2.2u
C2211 16V 0.1u
C2212 16V 0.1u
C2214 16V 100u
R2201 2.2k
R2202 1k
R2203 1k
R2204 100
R2205 0
TP16
TP17
AC-SCL1
AC-SDA1
AG-TV1-L
AG-TV1-R
SOUND L
SOUND R
AG-MAIN-L
AG-MAIN-R
*IC2401
BBE (VIVA)
INa
BBE1a
BBE2a
BBE-OUTa
TONE-INa
TONE-Ha
TONE-La
OUTa
AGC
SS-FIL
CVB
CVA
SDA
SCL
GND
INb
BBE1b
BBE2b
BBE-OUTb
TONE-INb
TONE-Hb
TONE-Lb
OUTb
SR-FIL
VREF
CTH
CTL
AUXO
AUX1
V+
C2451 16V 1u
C2452 50V 3300p
C2453 50V 0.033u
C2454 50V 2200p
C2455 16V 0.22u
C2456 16V 1u
C2457 16V 0.1u
C2458 50V 4.7u
C2459 50V 4.7u
C2460 50V 0.01u
C2461 16V 1u
C2462 50V 3300p
C2463 50V 0.033u
C2464 50V 2200p
C2465 16V 0.22u
C2466 16V 0.1u
C2467 50V 4.7u
C2468 50V 4.7u
C2469 50V 4.7u
C2470 16V 100u
R2454 680
R2455 100
R2456 100
AC-SDA1
AC-SCL1
Q2452
Q2451
R2452 1k
R2453 680
R2451 1k
OUTL
OUTR
AK-R
9V
IC2303
VAO
VCC
GND
C2372 0.01u 50V
R2343 10k
R2344 10k
R2345 10k
R2346 10k
R2348 10k
R2350 27k
R2351 4.7k
R2352 3.3k
R2357 3.3k
R2358 27k
R2359 4.7k
R2360 10k
R2361 1k
R2362 1k
R2364 47k
R2365 47k
R2366 1k
R2367 1k
C2369 10u 16V
C2370 16V 10u
C2373 50V 10u
C2375 50V 10u
C2376 16V 1u
C2377 16V 1u
C2378 16V 1u
C2379 16V 1u
TP98
TP99
VAO L
VAO R
AG-VAO-L
AG-VAO-R
JS026
JS027
Q2302
Q2301
Q2303
Q2304
Q2305
Q2306
Q2307
Q2308
20V
R2349 270
R2353 1k
R2354 3.9k
R2356 18k
D2307
D2306
C2374 25V 100u
R2363 22k
4.7k
OFF MUTE
VAO SOUND DEFEAT
C2371 50V 0.01u
R2347 47k
AG-AUDIO-MUTE
AG-FAO-MUTE
AG-INPUT-MUTE
4.5V DC
Audio Mute: Hi-Mute
Imput Mute: Lo-Mute
R2460 10k
R2461 3.3k



A6
Y/V
N.C
GND
C
S
L
GND
R
GND
TP48
R3201
75
TP33
TP35
R3202
75
TP38
TP42
TP43
1500p 50V C3202
TP47
1500p 50V C3203
AF-Y4
AF-C4
AF-S4
AF-L4
AF-R4
AD-KEY-SCAN3
A4
TP59
AA-V-SAW
TP60
R1334
AA-DAF-CUT
TP61
AA-EHTFB
TP62
AA-V-SAW-GND
TP63
AA-EHT-PRO
L1302
TP64
AC-SCL1
L1303
TP65
AC-SDA1
TP66
AB-CONV-B
TP67
AB-CONV-G
CONVER
AB-CONV-R
TP68
TP69
V-SAW
DAF-CUT
EHTFB
GND
EHT-ADJ
HHS DET
GND
SCL1
GND
SDA1
GND
OSD-B
GND
OSD-G
SET5V
OSD-R
SET5V
S-FAO-MUTE
AD-SOS-LED
AD-KEY-SCAN2
AD-KEY-SCAN1
AD-RMIN
AA-MAIN-SW
AA-SOS3
AA-ZERO-X
S-3.3V
AD-STB3.3V
AD-5V(M)
L1301
C1303 50V 0.01u
TP32
STB-3.3V
IC1302
R1324 100
R1325 100
R1326 100
AE-SCL3
AE-SDA3
VCC
WC
SCL
SDA
E0
E1
E2
VSS
EEPROM
SLV1A0
IC1303
C1306 50V 0.01u
C1307 16V 100u
5V
AA-C-WP
AA-C-SCL
AA-C-SDA
AC-SDA1
AC-SCL1
IC872
9V
ON/OFF
OadJ
GND
VOUT
VIN
R875 6.19k
R878 1k
L880 22u
TP41
L887 100u
20V
C861 50V 0.01u
C865 16V 220u
D874
C868 16V 470u
D880
L883
C874 35V 220u
IC876
2.5V
D-2.5V
TP54
R882 953
R885 1k
L889
L892
L894 100u
D884
C877 50V 0.01u
C879 6.3V 220u
C885 10V 470u
D887
C889 35V 220u
AB-CONV-YS
A3
TP70
TP71
L1304
AA-C-SCL
TP72
L1305
AA-C-SDA
TP73
L1306
AA-C-WP
TP74
AB-WP
12V
TP75
No Need
AA-FBPOUT
TP76
AB-HBLK
TP77
AA-EW
YS
GND
C-SCL
GND
C-SDA
GND
C-WP
GND
VD(TO CONV)
12V
FBP(TO CONV)
12V
H-SYNC(FORM CONV)
FBT(TO CONV)
HBLK(FROM CONV)
EW
AD-SOS2
AA-SOS1
SUB 5V
IC874
5V
R876 33
R879 1k
L882 22u
TP44
L884 150u
L888 47u
C864 50V 0.01u
C867 16V 220u
D875
C869 10V 470u
D881
C876 35V 220u
IC877
1.8V
D-1.8V
TP55
R883 634
R886 1k
L890 220u
L893
L895 100u
D885
C878 50V 0.01u
C880 6.3V 220u
C886 10V 470u
D888
C890 35V 220u
A2
TP88
TP87
TP78
AA-H-DRV
TP79
AA-FBP
Near A2
TP94
AA-ZERO-X
TP80
AA-SOS3
TP81
AA-ABL
TP82
AA-SOS1
GND
20V
H-DRV
20V
FBP
20V
GND
20V
GND
GND
SOS3(CONV)
GND
ABL
GND
SOS(140V+V-AMP)
GND
TO CON-PANEL.FA
TO D-PANEL
INPUT-MUTE
AUDIO-MUTE
AG-VAO-R
AG-VAO-L
AG-TV1-L
AG-TV1-R
AG-MAIN-L
AG-MAIN-R
IC875
3.3V
R877 1.78k
R880 1k
L881 220u
L885
L886 100u
D-3.3V
TP39
C863 50V 0.01u
C866 6.3V 220u
D872
C870 10V 470u
D882
C875 35V 220u
9V
5V
3.3V
2.5V
1.8V
STB7.7V
ATSC10V
1/2W
*R881 56
*D886
From Sub-Trance
STBY 7V
A1
S20V
C2215 50V 0.1u
S-GNDOV
TP83
S-20V
TP84
C2216 50V 0.1u
TP85
C-BTL40V
TP89
TP90
P-BTL40V
AA-MAIN-SW
TP91
TP92
TP93
TP86
+20V
GND(SOUND)
+20V
GND(SOUND)
-20V
GND(SOUND)
-20V
C-BTL 40V
AC ON/OFF
P-BTL 40V
STAND BY GND
STBY 7V
STBY 7V
STBY 7V
TUNER GND
TUNER GND
AD-SOS2
AA-DAF-CUT
AA-V-SAW
AA-V-SAW-GND
AA-FBP
AA-EW
AA-ABL
AA-H-DRV
AA-EHTFB
AA-FBPOUT
AD-SOS-LED
AA-EHT-PRO
R870 100k
C860 50V 0.01u
D891
20V
R871 2.7k
D873
D870
Q883
R873 1k
Q881
R872 33k
Q882
R874 3.3k
10k
47k
AUDIO
TO CON-PANEL.FA
TO D-PANEL
AA-C-WP
AA-C-SDA
AA-C-SCL
STB-7V
AD-RMIN
AD-5V(V1)
AE-SDA1
AE-SCL1
AE-SDA3
AE-SCL3
AD-FA1
AD-STB3.3V
R008 10k
R009 10k
R010 10k
C1305 16V 0.1u
AD-KEY-SCAN3
AD-KEY-SCAN2
AD-KEY-SCAN1
AD-RMIN
AD-STB3.3V
STB-3.3V
R1322 100
R1323 100
R1327 100
R1329 100
R1330 100
R1331 100
R1332 100
TP27
TP28
TP29
TP30
TP31
TP34
TP36
TP37
TP40
TP45
TP46
C1304 50V 0.1u
A15
TO BUSSCON
TP49
TP50
TP51
TP52
A8
TP57
TP58
A7
IIC
ConvWP
ConvSDA
ConvSCL
VCC (5V)
RM IN
SDA1
SCL1
SDA3
SCL3
GND
FA
STBY 7V
LED
GND
KEY SCAN3
KEY SCAN2
KEY SCAN1
GND
GND
RM IN
STB3.3V
TO TNPA0615
J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8


SOS of front LED
1 time : 140V
2 times : Low DC
3 times : Conv.
4 times : SUB9V
5 times : HHS
6 times : IC4001
7 times : IC4201
8 times : IC4401
MAIN TUNER
TU001
SUB TUNER
TU002
MAIN VIDEO
SUB VIDEO
for Main
IC874
IC875
IC872
IC876
IC877
IC2302
IC2401
IC1302
IC2201
STB7.7V
3.3V
2.5V
1.8V
5V
9V
S+18V
wROUT
wLOUT
AGCADJ
A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
6
7
8

MTNC040520C1

B19

Service Manual

HDTV MONITOR

PT-53X54J

GN1P

Panasonic®

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by ⚠ in the Schematic Diagrams, Circuit Board Diagrams, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permission of manufacturer.

1. Safety precautions

General guidelines

An isolation transformer should always be used during the servicing of a receiver whose chassis is not isolated from AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injuryfrom electrical shocks. It will also protect the receiver from being damaged by accidental shorting that may occur during servicing.

When servicing, observe the original lead dress, especially in the high voltage circuit. Replace all damaged parts (also parts that show signs of overheating.)

Always replace protective devices, such as fish paper, isolation resistors and capacitors, and shields after servicing the receiver. Use only manufacturer’s recommended rating for fuses, circuits breakers, etc.

High potentials are present when this receiver is operating. Operation of the receiver without the rear cover introduces danger for electrical shock. Servicing should not be performed by anyone who is not thoroughly familiar with the necessary precautionswhen servicing high voltage equipment.

Extreme care should be practiced when handling the picture tube. Rough handling may cause it to implode due to atmospheric pressure. (14.7 lbs per sq. in.). Do not nick or scratch the glass or subject it to any undue pressure. When handling, usesafety goggles and heavy gloves for protection. Discharge the picture tube by shorting the anode to chassis ground (not to the cabinet or to other mounting hardware). When discharging connect cold ground (i.e. dag ground lead) to the anode with a wellinsulated wire or use a grounding probe.Avoid prolonged exposure at close range to unshielded areas of the picture tube to prevent exposure to x ray radiation.

The test picture tube used for servicing the chassis at the bench should incorporate safety glass and magnetic shielding. The safety glass provide shielding for the tube viewing area against x ray radiation as well as implosion. The magnetic shieldlimits the x ray radiation around the bell of the picture tube in addition to the restricting magnetic effects. When using a picture tube test jig for service, ensure that the jig is capable of handling 50kV without causing x ray radiation.

Before returning a serviced receiver to the owner, the service technician must thoroughly test the unit to ensure that is completely safe to operate. Do not use a line isolation transformer when testing.

Leakage current cold check

Unplug the A.C. cord and connect a jumper between the two plug prongs.Measure the resistance between the jumpered AC plug and expose metallic parts such as screwheads, antenna terminals, control shafts, etc. If the exposed metallic part has a returnpath to the chassis, the reading should be between 240k Ω and 5.2M Ω . If the exposed metallic part does not have a return path to the chassis, the reading should be infinite.

Leakage current hot check

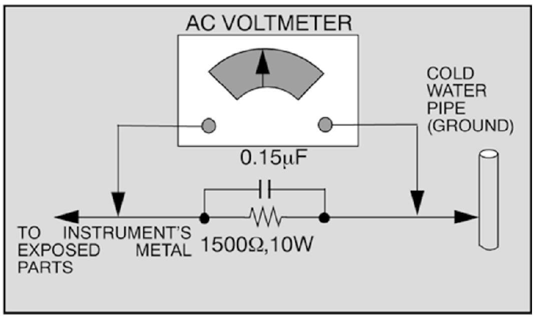
Plug the AC cord directly into the AC outlet. Do not use an isolation transformer during the check. Connect a 1.5k Ω 10 watt resistor in parallel with a 0.15 μ F capacitor between an exposed metallic part and ground. Use earth ground, for example a water pipe.

Using a DVM with a 1000 ohms/volt sensitivity or higher, measure the AC potential across the resistor.

Repeat the procedure and measure the voltage present with all other exposed metallic parts. Verify that any potential does not exceed 0.75 volt RMS. A leakage current tester (such a Simpson model 229, Sencore model PR57 or equivalent) may be used in the above procedure, in which case any current measure must not exceed 0.5 milliampere.If any measurement is out of the specified limits, there is a possibility of a shock hazard and the receiver must be repaired and

rechecked before it is returned to the customer.

Hot check circuit



Insulation test

Connect an insulation tester between an exposed metallic part and A.C. line. Apply 1080VAC/ 60Hz for 1 second. Confirm that the current measurement is 0.5mA ~ 2.0mA. Repeat test with other metallic exposed parts.

X-ray radiation

WARNING

The potential source of x-ray radiation in the PTV set is in the high voltage section and the picture tube.

NOTE

It is important to use an accurate, calibrated high voltage meter.

Apply all black video signals (1080i) and confirm high voltage measures 31.5 ± 1.0kV. If the high voltage is not within the range, change C514 (in D-Board) to 1800pF, 2000pF, 2400pF or 2700pF until the desired value isobtained.Apply NTSC white pattern and confirm the high voltage measures 30.1 ± 1.5kV. Apply HD 1080i white pattern and confirm the high voltage measures 30.1 ± 1.5kV.

2. About lead free solder (PbF)

NOTE

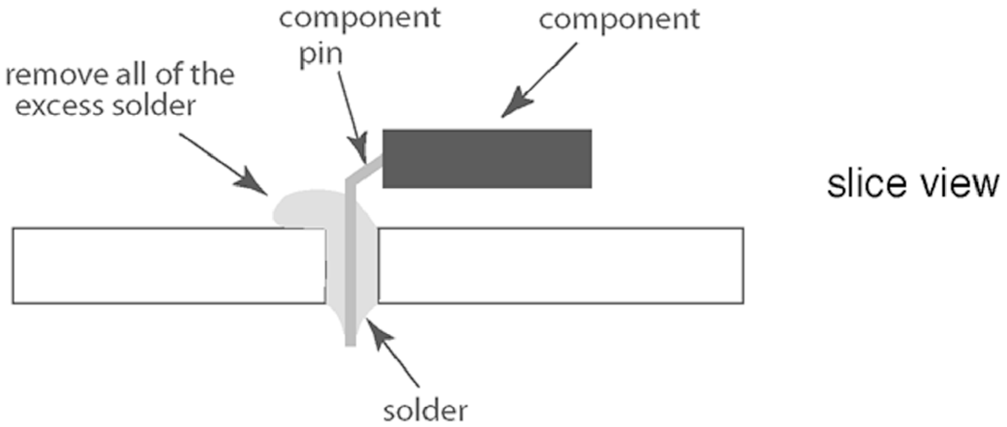
Lead is listed as (Pb) in the periodic table of elements. / In the information below, Pb will refer to lead solder, and PbF will refer to Lead Free Solder. / The lead free solder used in our manufacturing process and discussed below is (Sn+Ag+Cu). / Thatis Tin (Sn), Silver (Ag) and Copper (Cu) although other types are available.

This model uses Pb Free solder in it's manufacture due to environmental conservation issues. For / service and repair work, we'd suggest the use of Pb free solder as well, although Pb solder may be / used. / PCBs manufacturedusing lead free solder will have the "PbF" or a leaf symbol stamped on the / back of PCB.

PbF

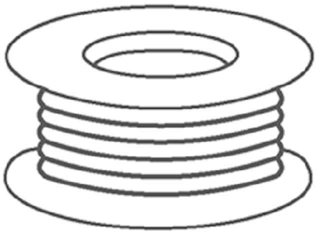
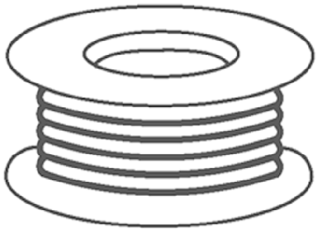
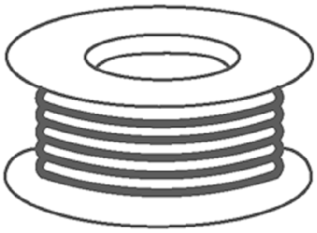
CAUTION

- **Pb free solder has a higher melting point than standard solder. Typically the melting point is 50 ~ 70 °F (30 ~ 40 °C) higher. Please use a high temperature soldering iron and set it to 700 ± 20 °F (370 ± 10 °C).**
- **Pb free solder will tend to splash when heated too high (about 1100 °F or 600 °C). / If you must use Pb solder, please completely remove all of the Pb free solder on the pins or solder area before applying Pb solder. If thisis not practical, be sure to heat the Pb free solder until it melts, before applying Pb solder.**
- **After applying PbF solder to double layered boards, please check the component side for excess solder which may flow onto the opposite side.**



Suggested Pb free solder

There are several kinds of Pb free solder available for purchase. This product uses Sn+Ag+Cu (tin, silver, copper) solder. However, Sn+Cu (tin, copper), Sn+Zn+Bi (tin, zinc, bismuth) solder can also beused.

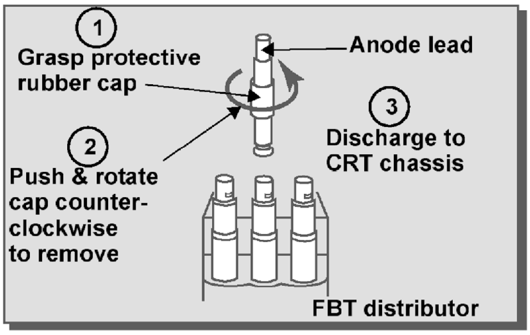
0.3mm X 100g	0.6mm X 100g	1.0mm X 100g
		

3. Important safety tests

Measuring H.V.

The anode caps are cemented to the CRTs. To gain access for high voltage measurement, remove the red CRT's anode lead from the flyback transformer distributor. Grasp the anode lead protective cap at its bottom and squeeze it against thelocking cap body inside, rotate 1/4 turn counter clockwise and pull the anode lead sleeve out of the FBT distributor. Connect a high voltage positive lead from your H.V. meter to the FBT distributor, and the common negative lead to cold ground

FBT leads removal


①
Grasp protective rubber cap
Anode lead
③
Discharge to CRT chassis
②
Push & rotate cap counter-clockwise to remove
FBT distributor

Note:

Reinsert the anode lead into the FBT distributor until it is tightly and fully seated. Turn the locking cap clockwise to lock in place.

(EHT) Protector operation check

With the cabinet back removed, apply a nominal 120V A.C. to the PTV.

Over voltage test

Preparation:

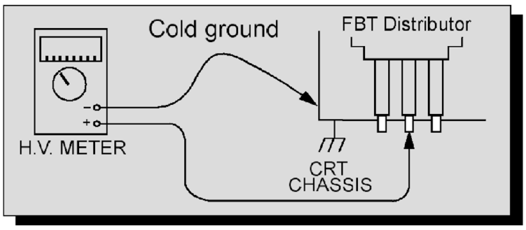
1. Turn PTV "OFF"

2. Connect a NTSC signal generator to the antenna terminal.

3. Connect DVM positive lead to D31 pin 2 and negative lead to D31

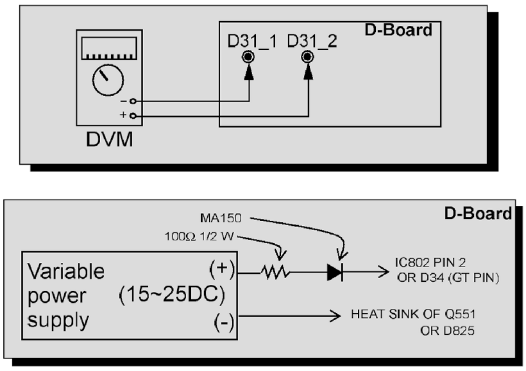
pin 1 on D-Board

H.V. measurement


Cold ground
FBT Distributor
-
+
H.V. METER
CRT
CHASSIS

4. Connect a H.V. meter (static type, class 0.1) with high voltage leads to high voltage distributor on FBT.

DVM and power supply connection


D31_1 D31_2
D-Board
-
+
DVM
MA150
100Ω 1/2 W
D-Board
Variable
power
supply
(+)
(15~25DC)
(-)
IC802 PIN 2
OR D34 (GT PIN)
HEAT SINK OF Q551
OR D825

5. Connect the 15 ~ 25 V DC variable power supply positive lead to D34 or IC802 pin 2 (D Board) and negative lead to heat sink of Q551 or D825

Procedures:

1. Apply a NTSC white pattern.
2. Turn PTV ON.
3. Adjust the picture or brightness controls so that the DVM reads 12.7 ± 0.4 volts.
4. Increase the variable power supply until set turns off. The set should turn off at 12.7 ± 0.4 volts (DVM) and high voltage less than 36.4kV.
5. If the DVM reading is other than 12.7 ± 0.4 volts, readjust picture or brightness control and repeat steps 3.
6. Turn off the variable supply and confirm that the set will turn on by pulling out AC plug socket and connecting it again.

4. Service notes

NOTE

These components are affixed with glue. Be careful not to break or damage any foil under the component or at the pins of the ICs when removing. Usually applying heat to the component for a short time while twisting with tweezers will break the component loose.

Leadless chip component (surface mount)

Chip components must be replaced with identical chips due to critical foil track spacing. There are no holes in the board to mount standard transistors or diodes. Some chips capacitor or resistor board solder pads may have holes through the board,however the hole diameter limits standard resistor replacement to 1/8 watt. Standard capacitor may also be limited for the same reason. It is recommended that identical components be used.

Chip resistor have a three digit numerical resistance code, 1st and 2nd significant digits and a multiplier. Example: 162 = 1600 or 1.6k Ω resistor, 0 = 0 Ω (jumper).

Chip capacitors generally do not have the value indicated on the capacitor. The color of the component indicates the general range of the capacitance.

Chip transistors are identified by a two letter code. The first letter indicates the type and the second letter, the grade of transistor.

Chip diodes have a two letter identification code as per the code chart and are a dual diode pack with either common anode or common cathode. Check the parts list for correct diode number.

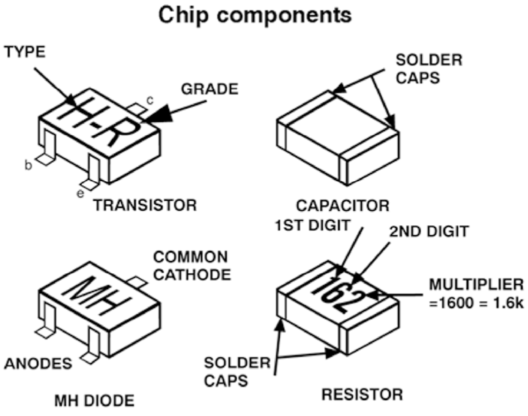
Component removal

1. **Use solder wick to remove solder from component end caps or terminal.**
2. **Without pulling up, carefully twist the component with tweezers to break the adhesive.**
3. **Do not reuse removed leadless or chip components since they are subject to stress fracture during removal.**

Chip component installation

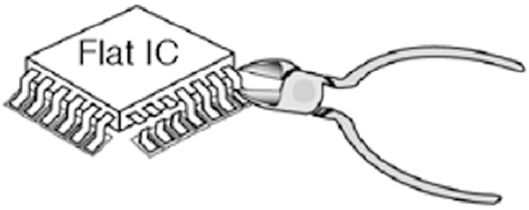
1. **Put a small amount of solder on the board soldering pads.**
2. **Hold the chip component against the soldering pads with tweezers or with a miniature alligator clip and apply heat to the pad area**

with a 30 watt iron until solder flows. Do not apply heat for more than 3 seconds.

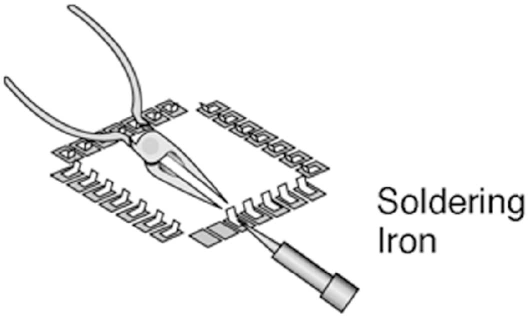

Chip components
TYPE
GRADE
H-R
c
b
e
TRANSISTOR
SOLDER CAPS
CAPACITOR
1ST DIGIT
2ND DIGIT
162
MULTIPLIER =1600 = 1.6k
COMMON CATHODE
MH
ANODES
MH DIODE
SOLDER CAPS
RESISTOR

How to replace flat ic (required tools)

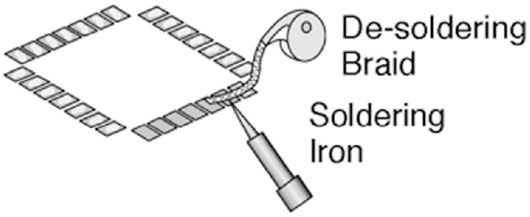
1. Remove the solder from all of the pins of a Flat IC by using a desolder braid



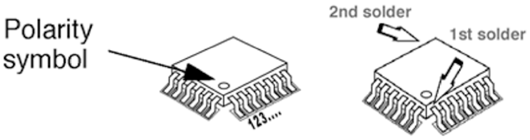
2. Put the iron wire under the pins of the Flat IC and pull it in the direction indicated while heating the pins using a soldering iron. A small awl can be used instead of the iron wire.


Soldering Iron

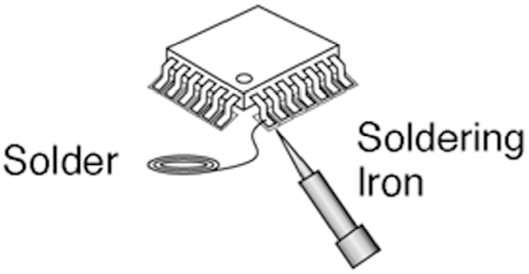
3. Remove the solder from all the pads of the Flat IC by using a de solder braid


De-soldering Braid
Soldering Iron

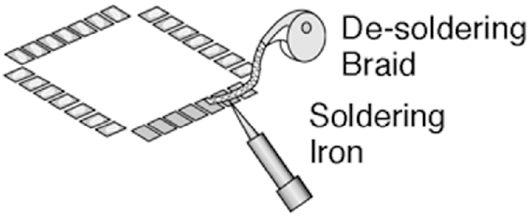
4. Position the new Flat IC in place (apply the pins of the Flat IC to the soldering pads where the pins need to be soldered). Properly determine the positions of the soldering pads and pins by correctly aligning the polarity symbol


Polarity symbol
123....
2nd solder
1st solder

5. Solder all pins to the soldering pads using a fine tipped soldering iron


Solder
Soldering Iron

6. Check with a magnifier for solder bridge between the pins or for dry joint between pins and soldering pads. To remove a solder bridge, use a de solder braid as shown in the figure below


De-soldering Braid
Soldering Iron

IMPORTANT

To protect against possible damage to the solid state devices due to arcing or static discharge, make certain that all ground wires are securely connected

CAUTION

The power supply circuit is above earth ground and the chassis cannot be polarized. Use an isolation transformer when servicing the receiver to avoid damage to the test equipment or to the chassis. Connect the test equipment to the proper ground(HOT or COLD) when servicing, or incorrect voltages will be measured.

WARNING

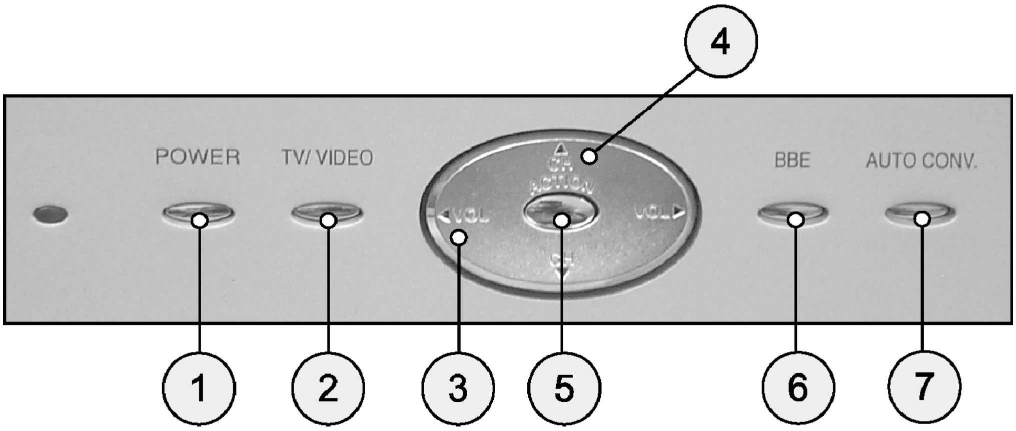
This receiver has been designed to meet or exceed applicable safety and x-ray radiation protection as specified by government agencies and independent testing laboratories.

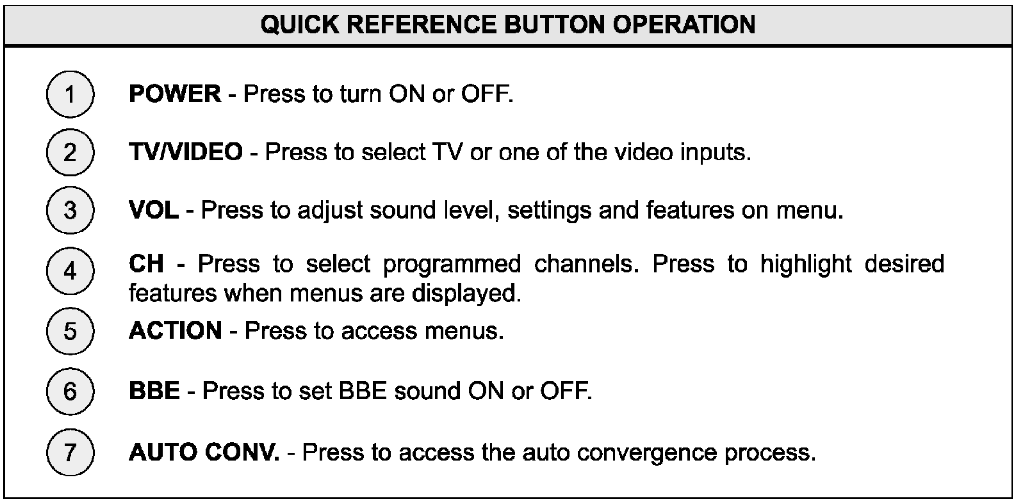
To maintain original product safety design standards relative to x-ray radiation and shock and fire hazard, parts indicated with the symbol ⚠ on the schematic must be replaced with identical parts. Order parts from the manufacturer’sparts center using the parts numbers shown in this service manual, or provide the chassis number and the part reference number.

For optimum performance and reliability, all other parts should be replaced with components of identical specification.

5. PTV Location of controls

Panasonic


POWER
TV/ VIDEO
CH
ACTION
VOL
VOL
CH
BBE
AUTO CONV.
1
2
3
4
5
6
7



QUICK REFERENCE BUTTON OPERATION

① **POWER** - Press to turn ON or OFF.

② **TV/VIDEO** - Press to select TV or one of the video inputs.

③ **VOL** - Press to adjust sound level, settings and features on menu.

④ **CH** - Press to select programmed channels. Press to highlight desired features when menus are displayed.

⑤ **ACTION** - Press to access menus.

⑥ **BBE** - Press to set BBE sound ON or OFF.

⑦ **AUTO CONV.** - Press to access the auto convergence process.

6. Receiver feature table

FEATURE/MODEL	PT-53X54J
CHASSIS	AP832
MICRO	256K
MENU LANGUAGE	ENGLISH/SPANISH/FRENCH
CLOSED CAPTION	X
V-CHIP (USA/CANADA)	X
CHANNEL INFO BANNER	X
VIDEO INPUT SKIP	SKIP
CHANNEL COUNT	181
CHANNEL COUNT	181
PIP (1T), 2T PIP (2T), 2T SPLIT	2T SPLIT
REMOTE CONTROL (W/LIGHT)	EUR7603ZF0
CRT SUPPLIER	MDDA (CENTAUR IV)
SCREEN	W/PROT SCREEN
CHASSIS	GN1P
COMB FILTER	MOTION ADP, 3D Y/C
HEC/VEC (X=BOTH)	X
NEW YNR	X
VM	X (SELECTABLE)
V/A NORM (X=BOTH)	X
COLOR TEMP	X
AUTO CONVERGENCE	X
AIP	X
PRESET/INPUT LABELING	X
VIDEO PICTURE MEMORY	X
DIGITAL SCAN RATE	1080i, 540p
NTSC LINE DOUBLER	540p PROGRESSIVE (NEW)
MTS/SAP/DBX	X
BUILT-IN AUDIO POWER	15W x 2 (10%)
No. OF SPEAKERS	4

FEATURE/MODEL	PT-53X54J
BASS/BALANCE/TREBLE CONTROL	X
AI SOUND	X
SURROUND	X
SPATIALIZER/BBE	BBE
A/V IN (REAR/FRONT)	4(3/1)
A/V PROGRAM OUT	X
AUDIO OUT (FAO: F, VAO:V)	F,V
COMPONENT INPUT (Y, Pb, Pr)	2
S-VIDEO INPUT (REAR/FRONT)	2/1
HDMI/HDCP INPUT	X

Note:
Specifications are subject to change without notice or obligation.

7. Board description table

BOARD	PART NUMBER	DESCRIPTION
A-BOARD	TNP2AH058	MAIN CHASSIS
D-BOARD	TNP2AH059	POWER SUPPLY
CD-BOARD	TNP2AA166	AUTO CONVERGENCE SENSOR
* DC-BOARD	TNP2AA163	CONVERGENCE PROCESSING
* DG-BOARD	TNP2AA173AE	MPU, VIDEO SIGNAL PROCESSIN
G-BOARD	TNP2AA164	FRONT A/V INPUT
H-BOARD	TNP2AA174AD	REAR A/V INPUTS
K-BOARD	TNP2AA165	KEYBOARD PANEL
LB-BOARD	TNP2AA161	BLUE PRT
LG-BOARD	TNP2AA160	GREEN PRT
LR-BOARD	TNP2AA162	RED PRT
R-BOARD	TNPA0615AB	IR SENSOR

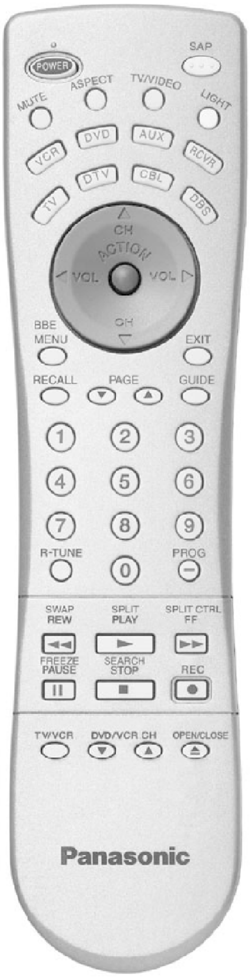
NOTE
When ordering a replacement board assembly, append an “S” to the board number

EXAMPLE
To order the A Board, the replacement board is TNP2AH058S

*

CD-Board, DC-Board and DG-Board are non-serviceable boards, except for the connector JK5001 in DG-Board. If any of these boards are defective, replace it with a new one.

8. Location of controls (EUR7603ZF0 remote)



SAP
POWER
ASPECT
TV/VIDEO
MUTE
LIGHT
DVD
AUX
VCR
RCVR
DTV
CBL
TV
DBS
CH
ACTION
VOL
VOL
CH
BBE MENU
EXIT
RECALL
PAGE
GUIDE
1
2
3
4
5
6
7
8
9
R-TUNE
0
PROG
SWAP REW
SPLIT PLAY
SPLIT CTRL FF
FREEZE PAUSE
SEARCH STOP
REC
TV/VCR
DVD/VCR CH
OPEN/CLOSE
Panasonic

POWER
Press to turn ON and OFF.

MUTE
Press to mute sound.

ASPECT
Press to change the aspect ratio of image.

TV - VCR - DVD - DBS - RCVR
Press to select a component.

ACTION
Press to acces the menu.

MENU
Press to turn BBE on or off.

RECALL
Press to display time, channel sleep timer and other options.

KEYBOARD
Press to select any channel.

R-TUNE
Press to switch to previously viewed channel or video mode.

SAP
Press to acces the secondary audio program broadcast.

LIGHT
Press to iluminate the keypad.

TV/VIDEO
Press to select TV or input mode.

VOL
Press to adjust TV sound and navigate in menus.

CH
Press to select next or previous channel and navigate in menus.

EXIT
Press to exit adjustments or menus.

GUIDE
Press to access DBS functions.

SPLIT / SEARCH
Press to access split or search functions.

DVD/VCR
Press to control DVD or VCR functions.

Note:
For additional information for this remote please refer to the owner's manual section remote operation, listed on the parts list section.

9. Auto diagnosis feature

This receiver incorporates a self diagnosis feature. With this feature it will be easier for the technician to detect failures. There is a LED located by the keyboard on the front panel, this LED will start flashing when SOS is detected by the circuits locatedin specific areas, depending on how many times the LED is flashing, this will indicate what circuit should be checked. Make a count of flashing and see the table shown below. Please use this feature effectively especially for intermittent problems.

NUMBER OF FLASHES	POSSIBLE CAUSE
1	POWER SUPPLY AND/OR VERTICAL
2	LOW DC
3	CONVERGENCE (DC-BOARD)
4	SUB9V
5	HHS
6	IC4001
7	IC4201
8	IC4401

10. EEPROM copy jig

This PTV has a feature that allows to clone convergence from main EEPROM data adjustments from a PTV to other by connecting a jig to the PTV set, or can be used to back-up data before making adjustments. A jig part number TXFJIG01SER, is availablethrough Matsushita/Panasonic Services.

Preparation:
To connect this jig, remove the lower back cover as instructed on disassembly for service section on this service manual and insert the jig into A15 connector located on A-Board. (See figure).

Procedure to copy data:

1. **Enter to service mode and display service menu (see service mode section).**
2. **Select “AREA” DAC and then press ACTION button on remote to enter. Press VOL right/left to select one of the following options then press ACTION:**

    - Select ALL to copy all main EEPROM data
    - Select ADJ to copy only adjustment data.
    - Select FIX to copy only fix data

3. **To copy data from main EEPROM to jig, select “IN → EX” DAC and press ACTION button on remote. The register background will momentarily become yellow indicating that copy is in progress.**
4. **To copy data from jig to main EEPROM, select “EX → IN” DAC and press ACTION button on remote. The register background will momentarily become yellow indicating that copy is in progress.**

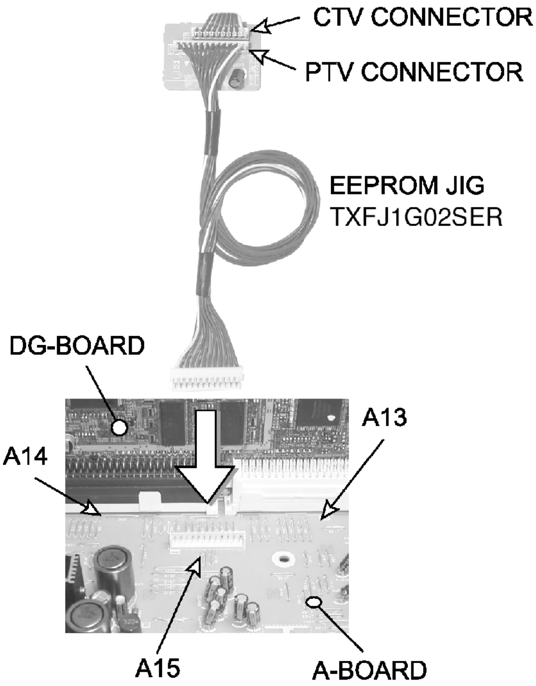
Procedure to copy convergence:

1. **Enter to service mode and display service menu**
2. **Select “FINE” DAC and press ACTION on remote.**
3. **Press “8” on remote.**
4. **Select from and then press ACTION on remote:**
    - **INT to copy data from internal EEPROM to jig**
    - **EXT to copy from jig to internal EEPROM.**
5. **Select an option from the menu with CH keys and confirm with ACTION:**
    - **DEFAULT:default factory preset**
    - **CURRENT:to copy the current (receiver data or jig data) convergence adjustments to memory.**
    - **NOT USE: to back up data.**
    - **ALL: to copy all data.**

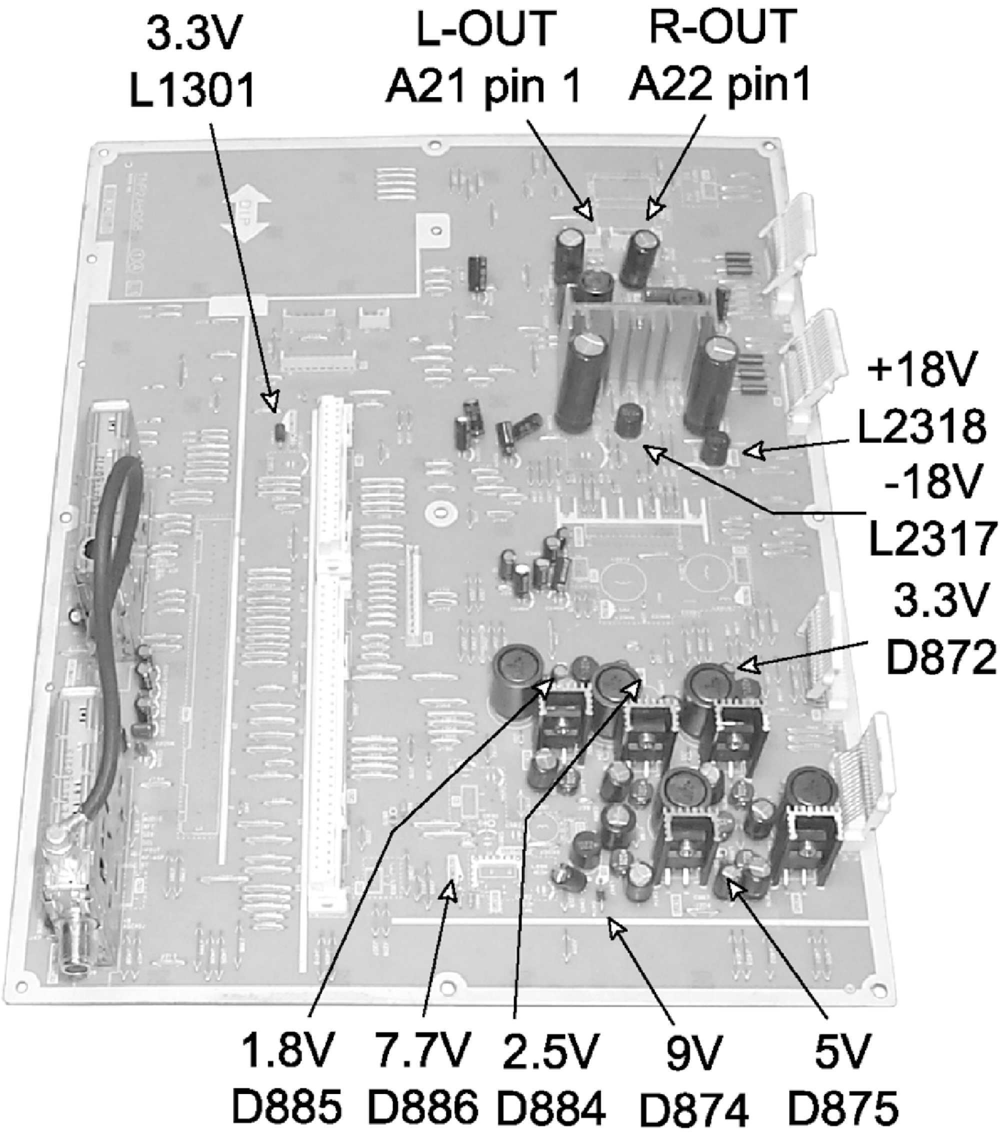
    NOTE:
    The stated as default factory preset contain the factory DATA; Use this option when data was lost or when adjustment is lost completely.

6. **Select destination to copy (INT or EXT) and confirm with ACTION.**
7. **Once an option is selected the copy process begins.**
8. **To exit “FINE” register press POWER and select “YES” option with ACTION. When the AUTO OFFSET process end, shut off the receiver.**
9. **Remove the copy jig from A15.**

EEPROM copy jig connection

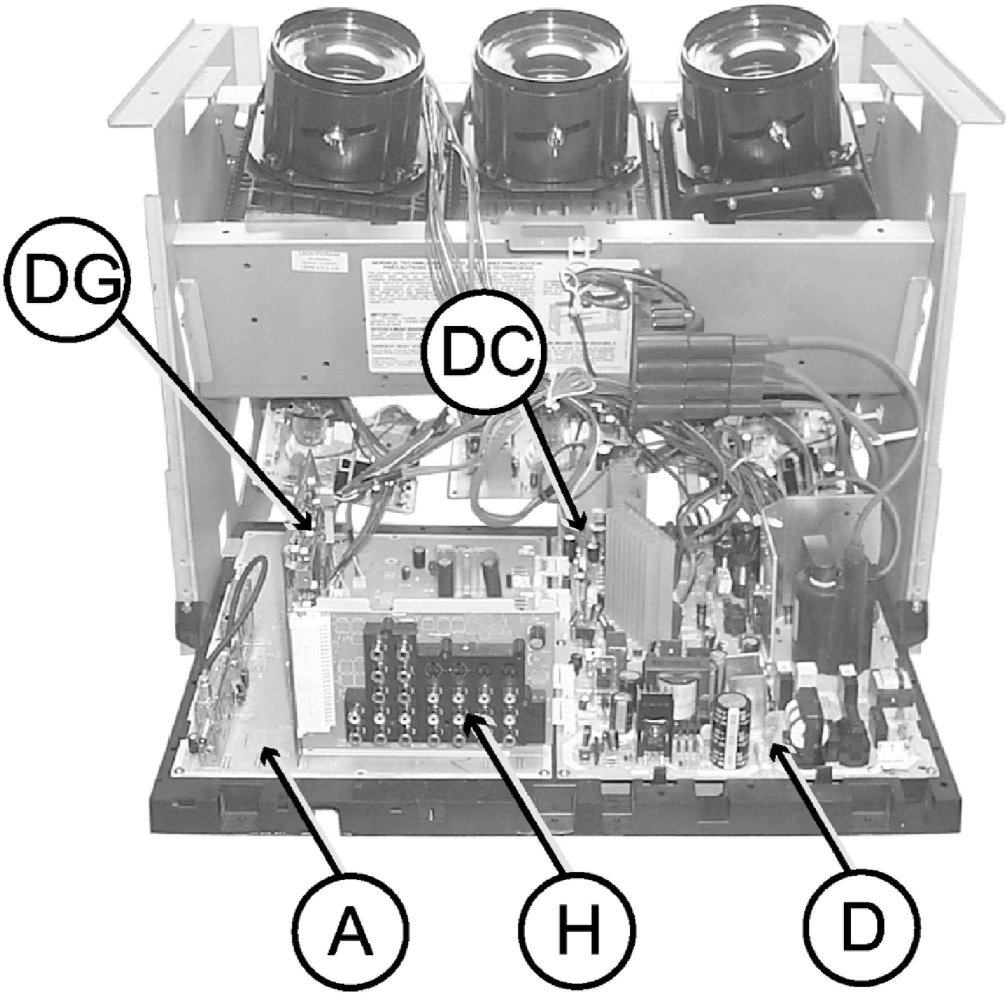

CTV CONNECTOR
PTV CONNECTOR
EEPROM JIG
TXFJ1G02SER
DG-BOARD
A13
A14
A15
A-BOARD

11. A-Board check points

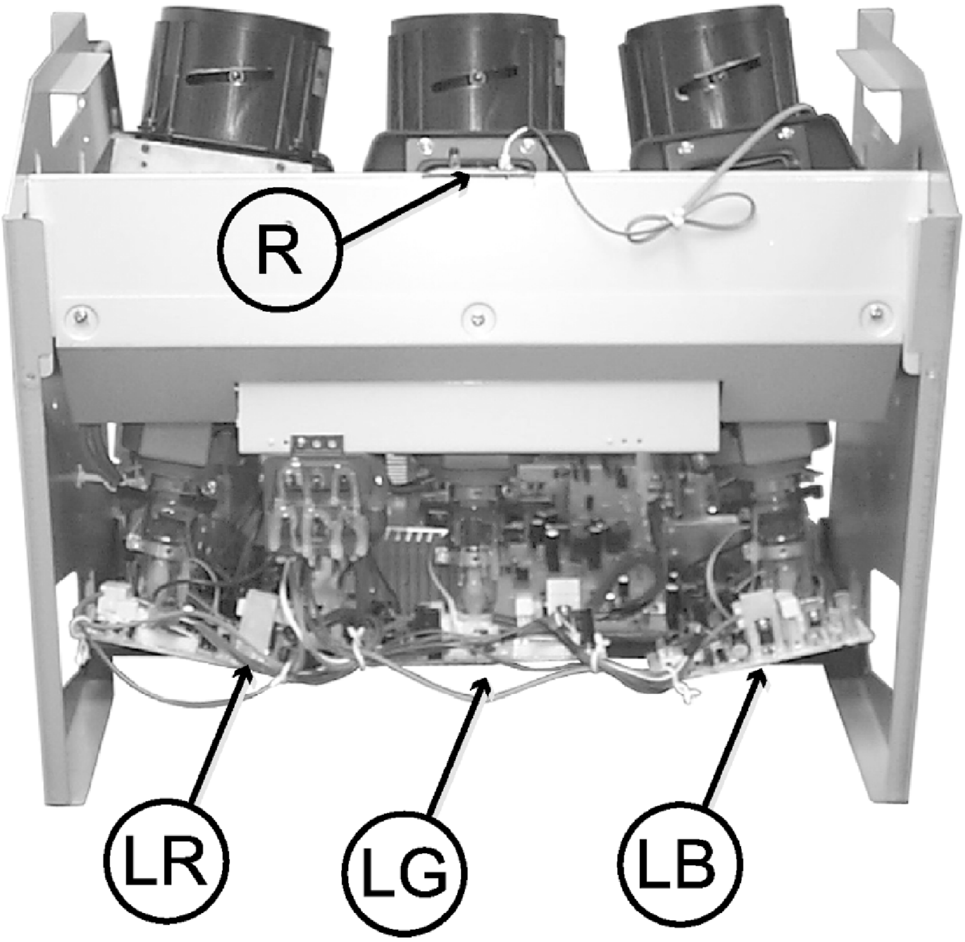

3.3V
L1301
L-OUT
A21 pin 1
R-OUT
A22 pin1
+18V
L2318
-18V
L2317
3.3V
D872
1.8V
D885
7.7V
D886
2.5V
D884
9V
D874
5V
D875

12. Chassis & boards layout (location of main components)

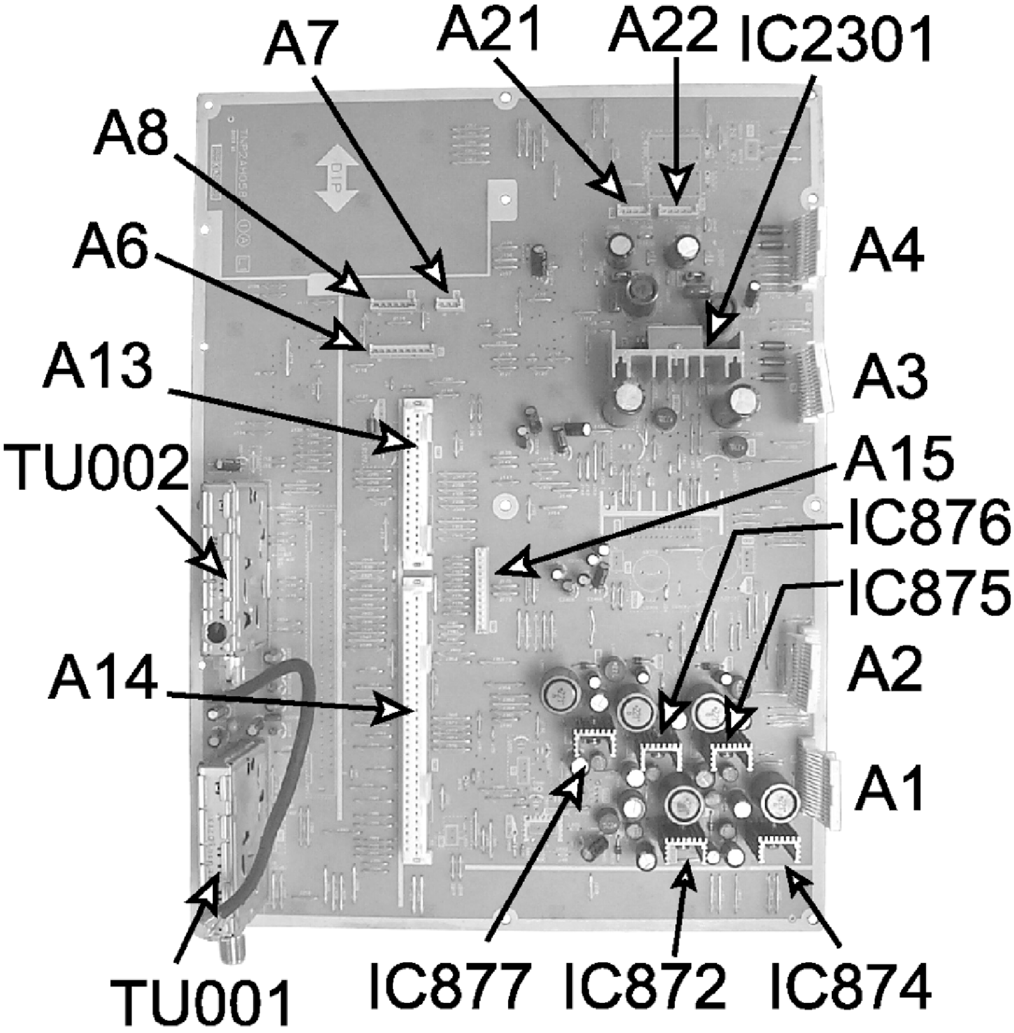
Chassis and boards layout



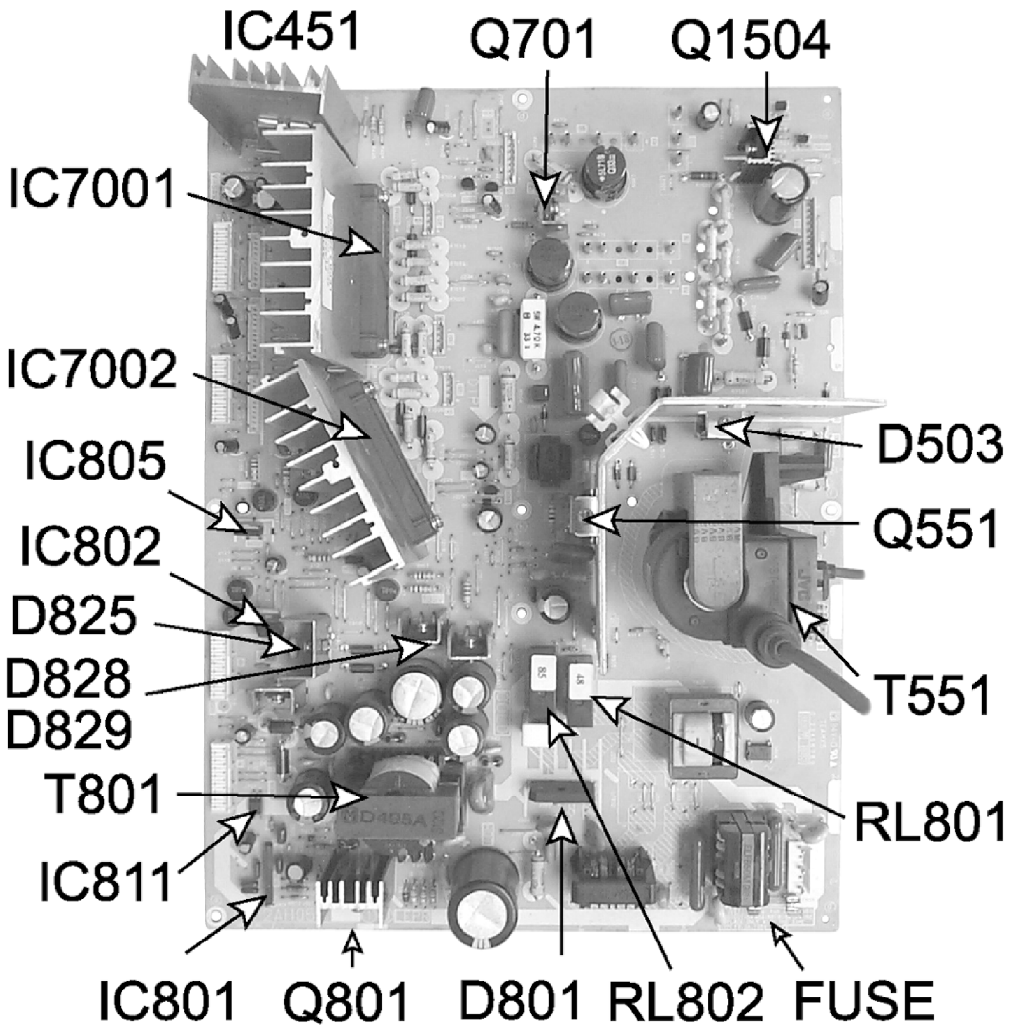
Chassis and boards (FRONT)



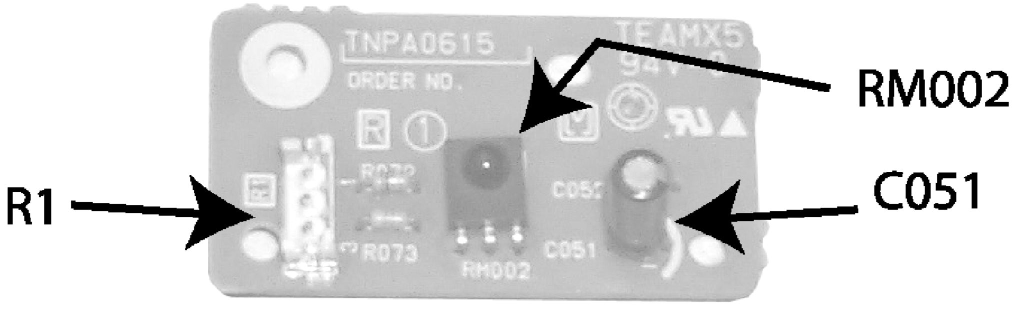
A-BOARD


A7
A21
A22
IC2301
A8
A6
A4
A13
A3
TU002
A15
IC876
IC875
A2
A14
A1
TU001
IC877
IC872
IC874

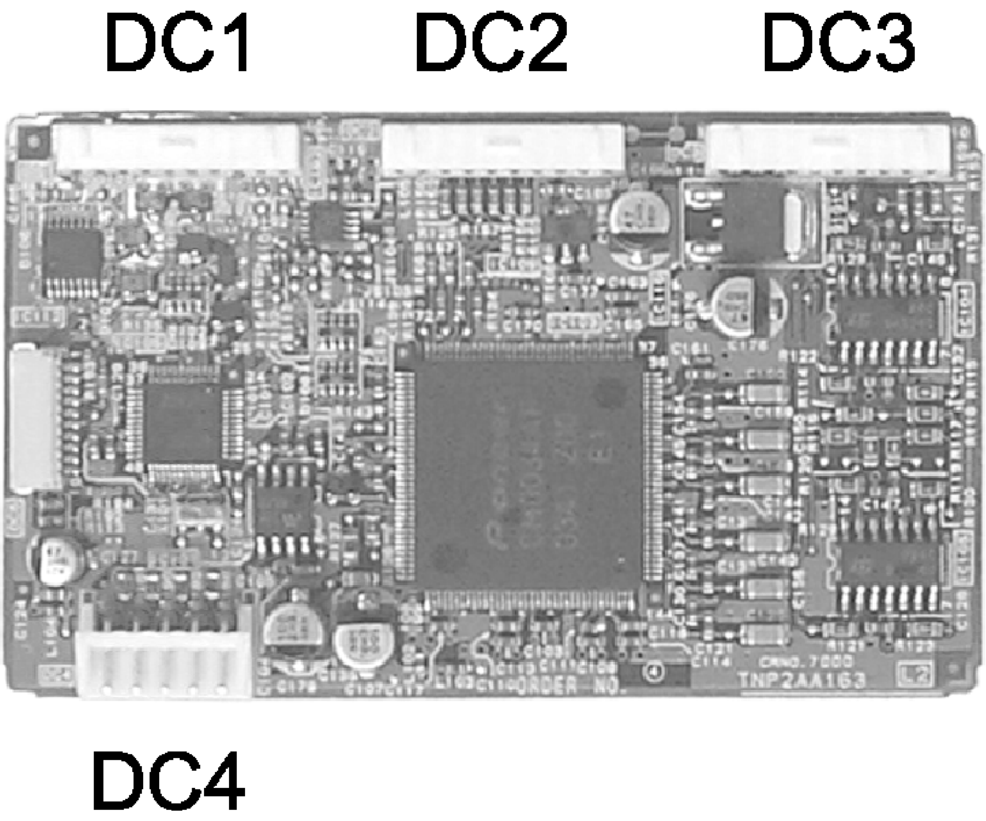
D-BOARD


IC451
Q701
Q1504
IC7001
IC7002
IC805
IC802
D825
D828
D829
T801
IC811
IC801
Q801
D801
RL802
FUSE
RL801
T551
Q551
D503

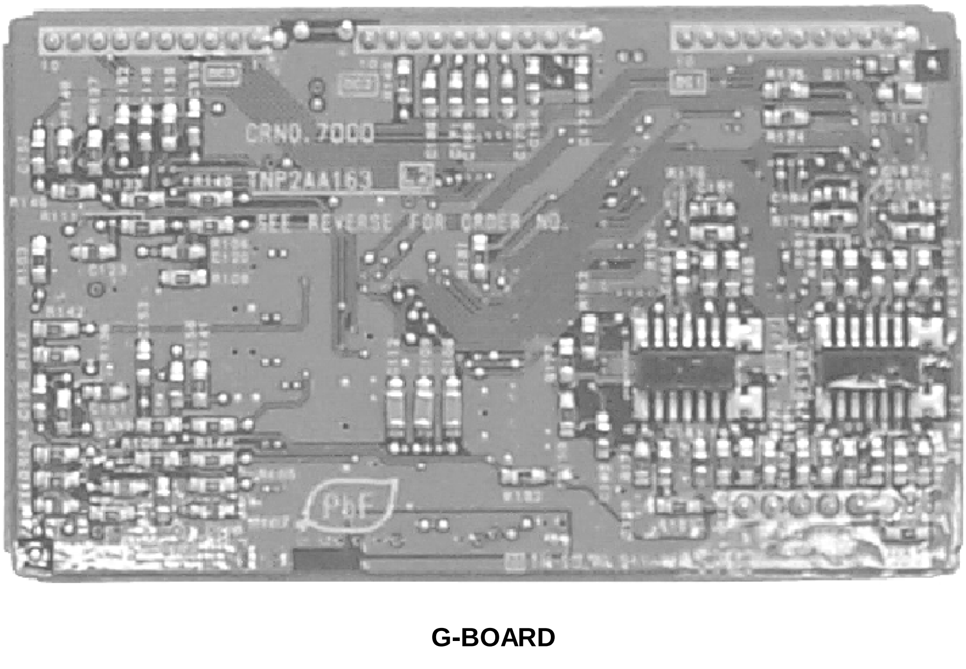
R-BOARD


RM002
R1
C051
TNPA0615
ORDER NO.
R073
RM002
C051
C052

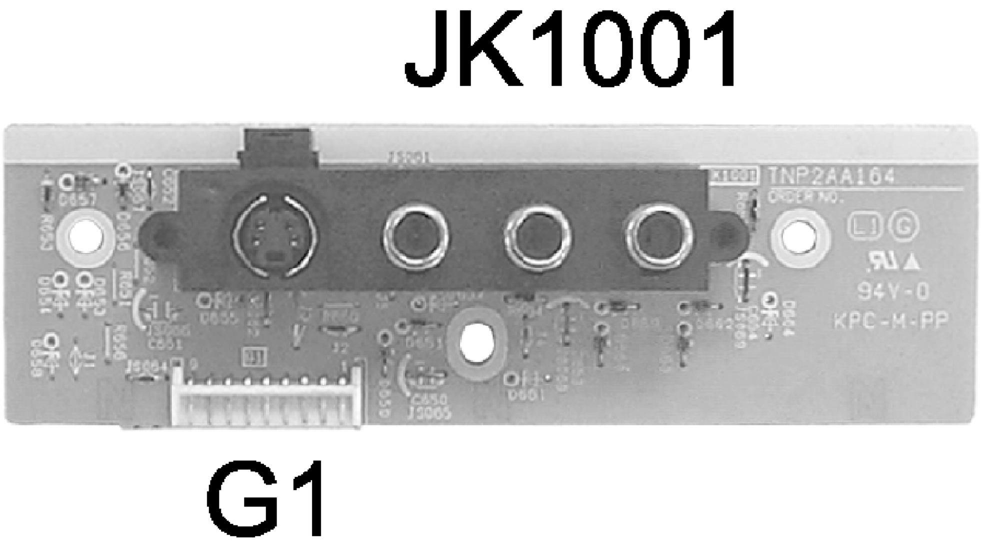
DC-BOARD (TOP)


DC1
DC2
DC3
DC4
CRNO.7000
TNP2AA163
ORDER NO.

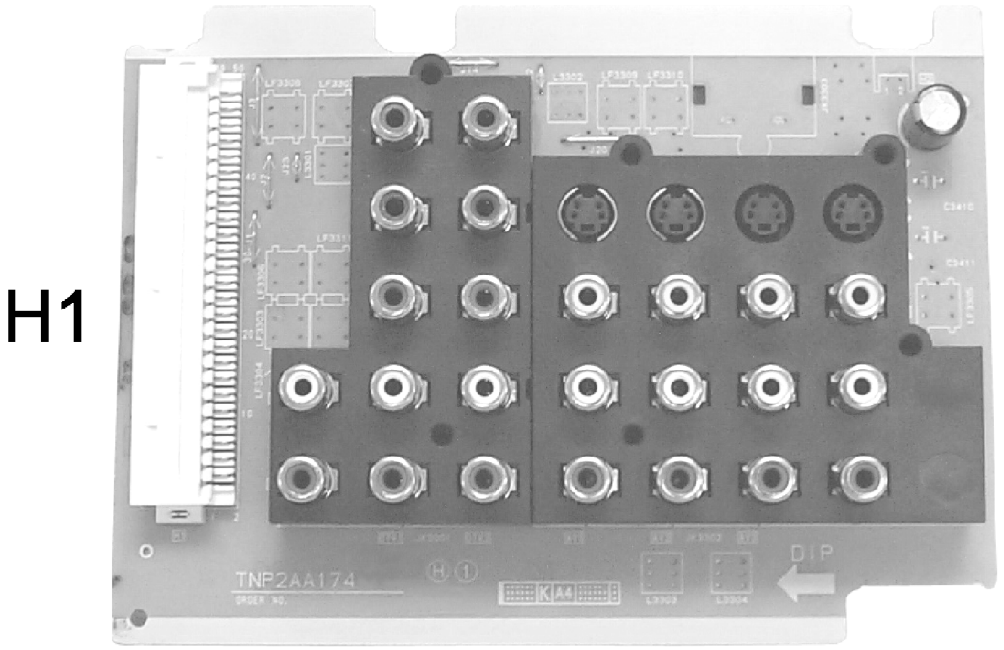
DC-BOARD (BOTTOM)


CRNO.7000
TNP2AA163
SEE REVERSE FOR ORDER NO.
PbF

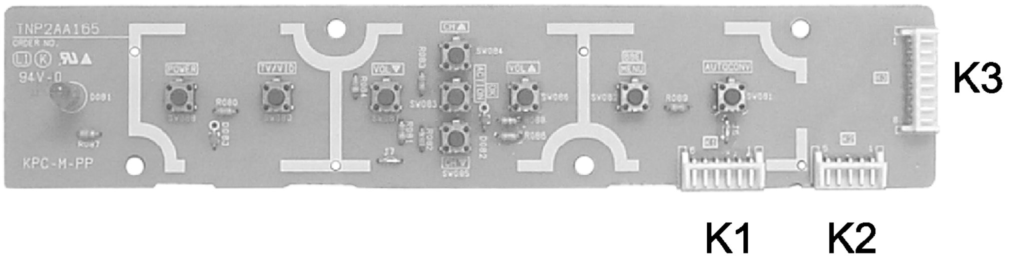
G-BOARD


JK1001
TNP2AA164
G1

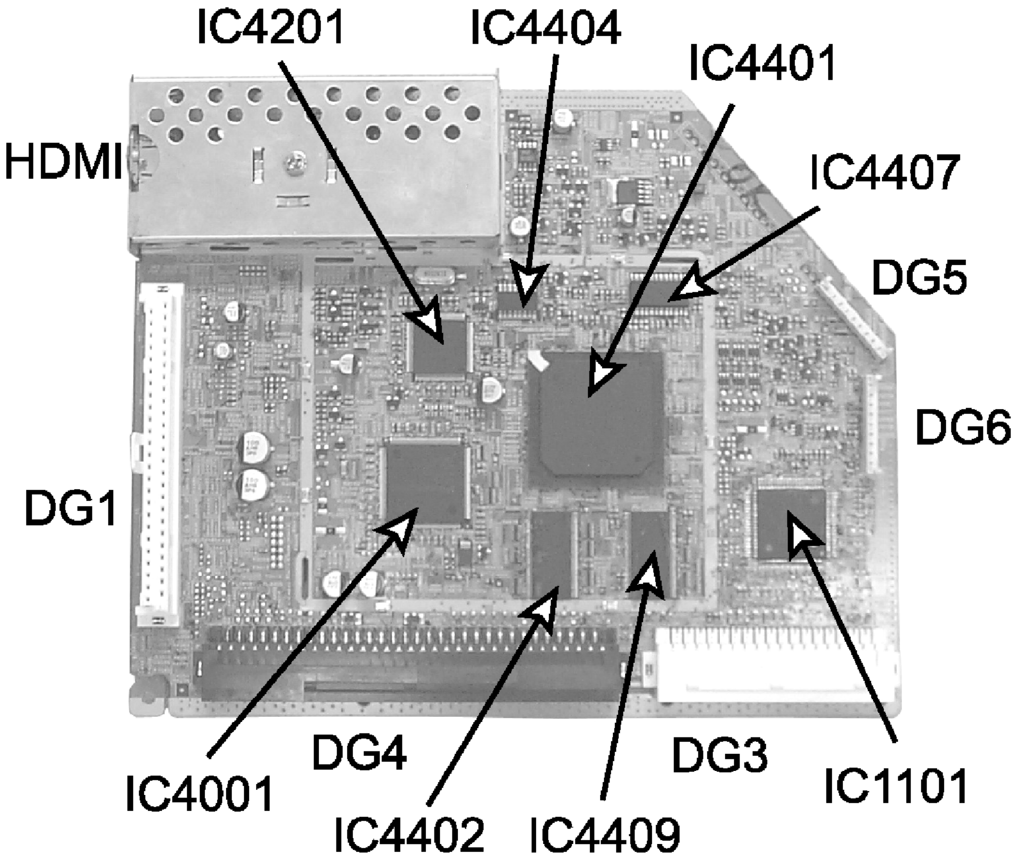
H-BOARD


H1
TNP2AA174
DIP

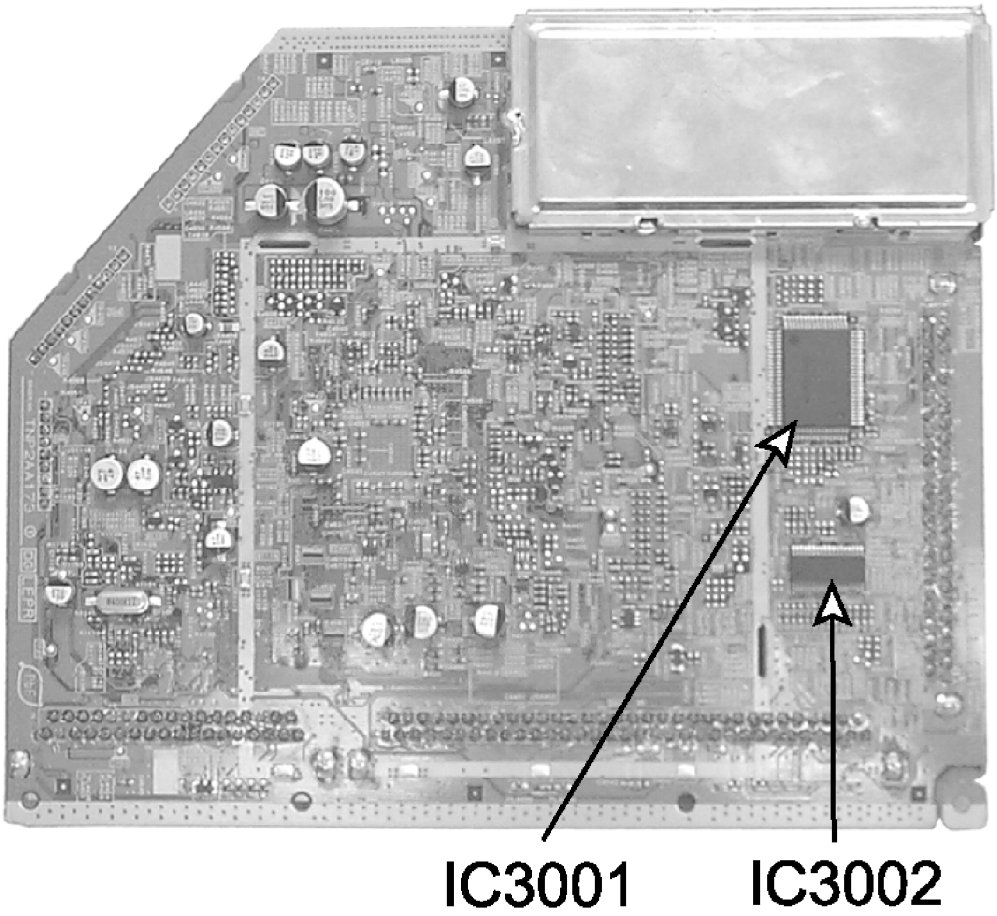
K-BOARD


TNP2AA165
K3
K1
K2

DG-BOARD (TOP)


IC4201
IC4404
IC4401
HDMI
IC4407
DG5
DG6
DG1
DG4
DG3
IC4001
IC1101
IC4402
IC4409

DG-BOARD (BOTTOM)

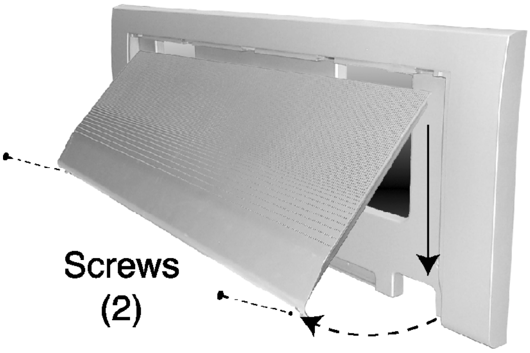


13. Disassembly for service

NOTE:
Board ground wires may have to be disconnected to disassemble some boards. All ground wires must be reconnected using jumper leads, if necessary, before power is applied to PTV for service.

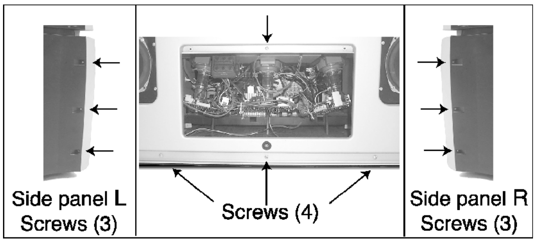
Speaker grille removal
Speaker grille, is secured to the cabinet of the PTV with 1 velcro dot and 2 screws at the bottom. Take the screws out and grip panel from the bottom, pull slightly backward and at the same time pull down to uncouple the 4 tabs. When reassembling,make certain to firmly press on the panel where the velcro dot is and that the four tabs are properly inserted in the front cover.

Speaker grill removal



Front cover replacement

1. **Remove the speaker grille.**
2. **Remove the cabinet front board by removing the 2 screws in the middle section.**
3. **Remove the screws from the middle section (4) of the front panel and both side panels (3 in each side from the back, see picture).**



4. **Pull the front panel from the bottom slightly downwards to unlock the tabs and remove.**

Speakers replacement

1. **Each speaker set is conformed by a tweeter and a woofer mounted in an enclosure fixture. This fixture is fastened to the main cabinet board by 6 screws. The tweeter and woofer are mounted in the fixture with 2 screws (each speaker). It isrecommended for speaker servicing to remove the speaker enclosure.**
2. **Disconnect the R (A22) and L (A21) speaker connectors from A-board.**

IMPORTANT!!

When replacing speakers (tweeters and woofers) be sure to order the proper replacement part number. Check part number on the

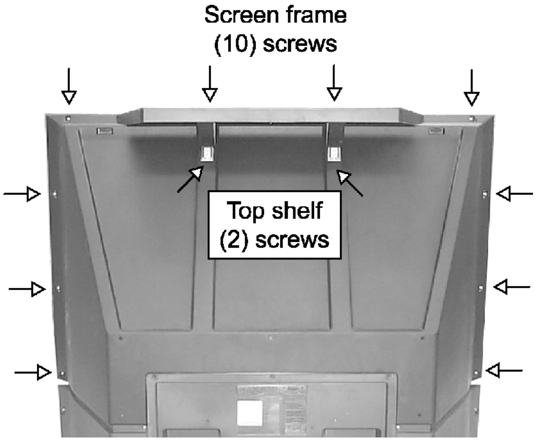
back of the speaker and order accordingly as different part numbers differ on PT-53X54J models. Also check part list whenordering.

Part number	Replace with	Description
EAST16P51A6	EAST16P51A6	Speaker Woofer
EAST6PH08P6	EAST6PH08P6	Speaker Tweeter
TAS2AA0027	TAS2AA0027	Speaker Woofer
TAS2AA0022	TAS2AA0022	Speaker Tweeter

Screen frame removal

1. **First, remove the front panel.**
2. **Below the screen, remove the 5 screws from the tabs, just below the front A/V inputs.**
3. **Remove the 10 screws from the back cover. At this point the top shelf must be removed from the back cover (2 screws).Be careful when removing the screen frame, try removing the screws from the sides first and leave the top screws at last, besure to hold the frame when removing the last screws.**

Screen frame removal (back view)



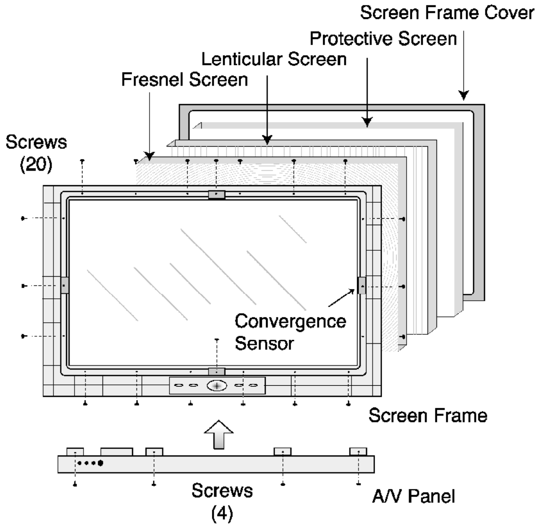
4. **Tilt the assembly forward while lifting it out of place.**
   CAUTION:

At this point the keyboard, A/V inputs and convergence sensors, must be disconnected from K-board and G-board, otherwise the cables and connectors could get damaged.

Screen assembly

1. **Remove the screen frame. See screen frame removal procedure above.**
2. **Place screen frame face down on a soft surface.**
3. **If necessary remove G-board and/or K-board.**
4. **If necessary disassemble A/V panel removing the screws (4) and tilt the panel upwards and release it from screen frame.**
5. **Remove the screws from the screen frame (20), be careful not to damage the convergence sensors (see picture).**

Screen assembly (Inside view)


Screen Frame Cover
Protective Screen
Lenticular Screen
Fresnel Screen
Screws
(20)
Convergence
Sensor
Screen Frame
Screws
(4)
A/V Panel

6. **Carefuly lift screen frame leaving the screen frame cover with the 3 screens (Fresnel, Lenticular, Protective) on top of it.**

Keyboard and front A/V inputs removal

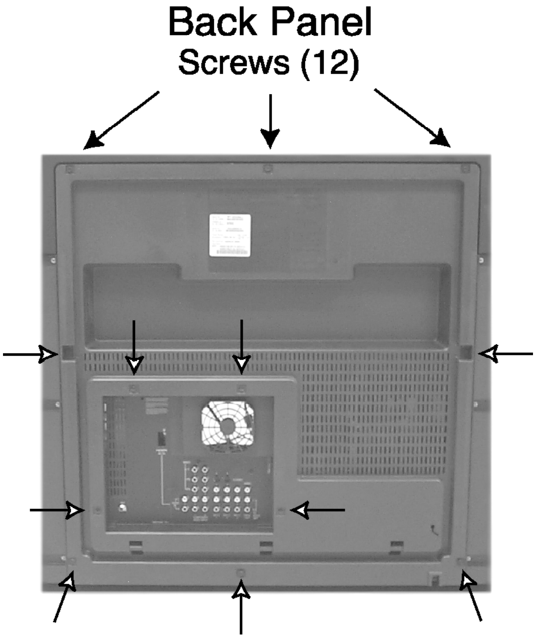
1. **Unplug the connectors from keyboard and front A/V inputs assemblies. Remove the screws affixing the keyboard (4 screws) and front A/V inputs (3 screws) and tilt the A/V panel assembly**

upward and release it fromthe screen frame.

Back panel removal

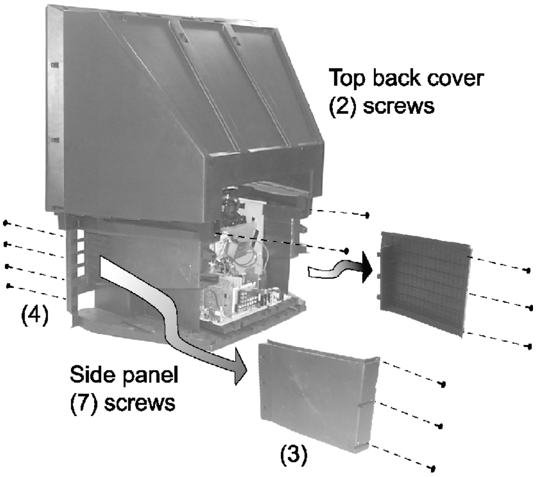
1. **The back panel is fastened to the cabinet by 12 screws. See picture for screw location.**

Back panel removal


Back Panel
Screws (12)

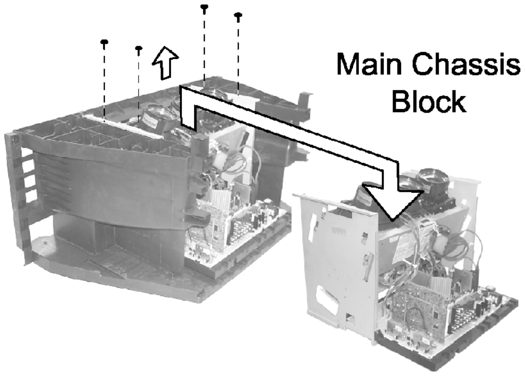
Main chassis block

1. **After removing the screen frame and front cover, remove the side panel from each side (each side panel is fastened by 7 screws, 4 at front and 3 in the back).**


Top back cover
(2) screws
(4)
Side panel
(7) screws
(3)

2. Remove the 2 screws from the cabinet body that holds the upper cabinet cover and carefully remove it.
3. The main chassis block is secured to the main body cabinet by 4 screws on the top (see picture).

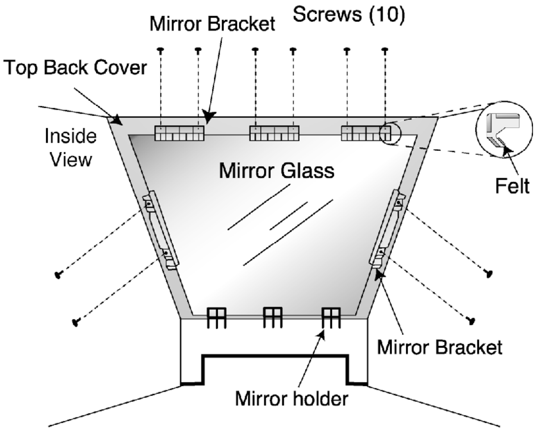
Chassis removal


Main Chassis Block

Mirror removal

The mirror is attached inside the cabinet cover. Carefully remove the cabinet cover to access its interior surface and remove the screws securing the brackets that hold the mirror at the top and sides to the mirror.

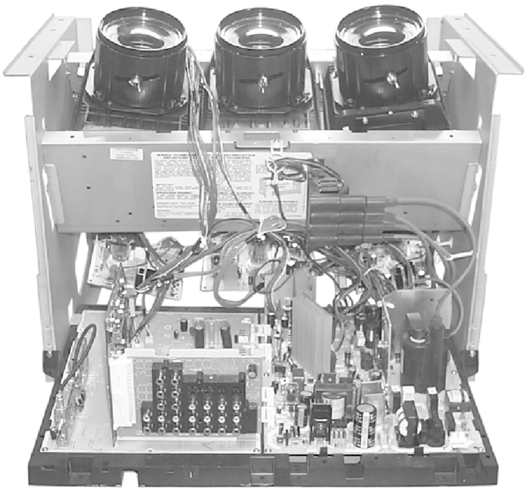
Mirror Removal (Inside View)


Mirror Bracket
Screws (10)
Top Back Cover
Inside View
Mirror Glass
Felt
Mirror Bracket
Mirror holder

13.1. Chassis assembly

The chassis assembly shown in figure includes all the electrical and optical components (light box).

Chassis back view



A/V BACK COVER ASSEMBLY

This assembly is secured to H-Board by 8 screws.

H-Board

1. **H-Board is connected to DG-board with H1 connector.**
2. **Pull carefully to the right to disconnect.**

DG-Board

1. **Plugs onto A-Board at A13 and A14 connectors (DG3 and DG4 respectively).**
2. **Remove plug cables from connectors DG5 and DG6.**

NOTE:

This board is non-serviceable. / When removing this board pull carefully.

A-Board

1. **A-Board is secured to the chassis tray with six screws.**
2. **The A-Board is mated to D-Board by four flexible connectors (male side of connectors): A1, A2, A3 & A4. To remove this board, unplug the connectors of A-Board pulling from the sides of each connector.**

NOTE:

Some tie wraps that secure the wire dressings may need to be unfastened for chassis removal.

3. Remove plug connector in A6 that goes to G-Board (G1).
4. Remove plug connectors in A7, A8 that goes to K-board (K1) and R -board (R1).

D-Board

1. D-Board is secured to the chassis tray with five screws.
2. The D-Board is mated to A-Board by four connectors (female side of connectors): D1, D2, D3 & D4. To remove this board, unplug the connectors on the A-Board pulling from the sides of each connector.

NOTE:
Some tie-wraps that secure the wire dressings may need to be unfastened for chassis removal.

DC-Board

1. Plugs onto the D-Board at the D21, D22 and D23 (DC1, DC2 and DC3 respectively) connectors.

NOTE:
This board is non-serviceable. / When removing this board pull carefully.

R-Board

1. This board is secured to the upper front side of the light box by one screw, and plugged to R1 connector from A7 on A-Board.

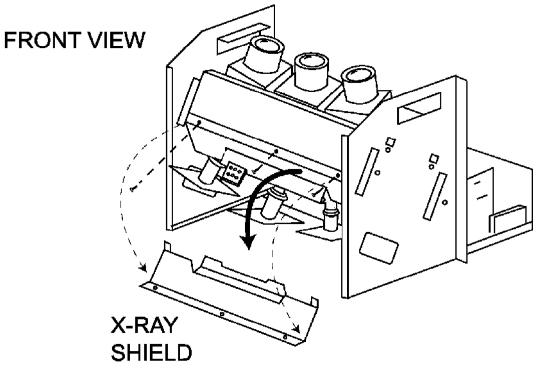
LR, LG and LB Board

1. Each board is plugged into the socket on the PRT neck, LR-Board on red PRT, LG-Board on green PRT and LB-Board on blue PRT.

13.2. Disassembly for CRT replacement

To facilitate CRT replacement, the complete CRT mounting chassis does not need to be removed.

1. **Remove the main chassis block from the cabinet.**
2. **Remove the optical bracket metal cover (front side x-ray shield) by removing 3 screws on top.**



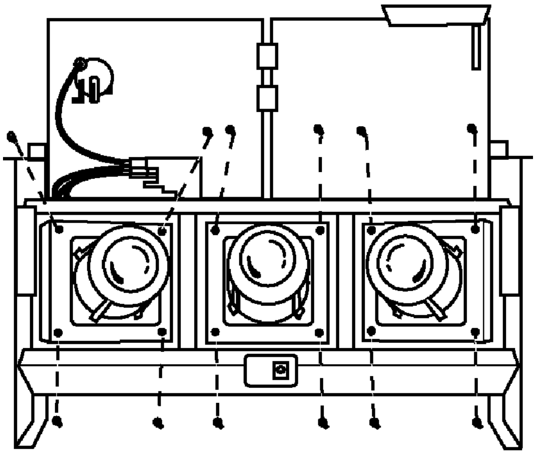
CRT replacement

3. **Remove the defective CRT anode lead from the high voltage distributor block that is mounted on the flyback transformer. Discharge to CRT chassis.**
4. **Unplug connectors from D-Board. See board layout. D14 for red, D15 for green and D16 for blue.**
5. **Unplug the defective CRT black DAG ground connector from the CRT Board.**
6. **Remove the CRT Board from the defective CRT neck.**
7. **Remove (4) screws from the defective CRT housing.**

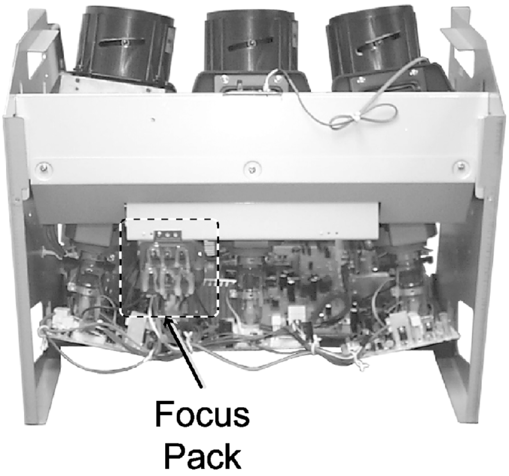
   Caution:

   Do not remove the (4) CRT lens screws. Support the CRT assembly when loosening screws.

CRT replacement



Focus pack location



8. **Release CRT anode lead from CRT chassis wire clamp and all other wires from holders.**
9. **Loosen a screw that secures the DY and remove it from the CRT neck.**

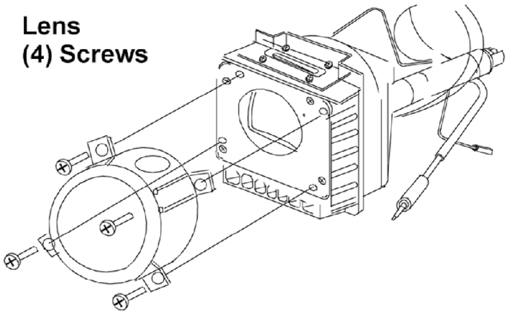
   Caution:

   To insure protection against x-ray radiation, the lens must be mounted in place at all times when power is applied to the PTV

CRT replacement

1. **Remove CRT focus lens assembly (4 screws)**

CRT assembly

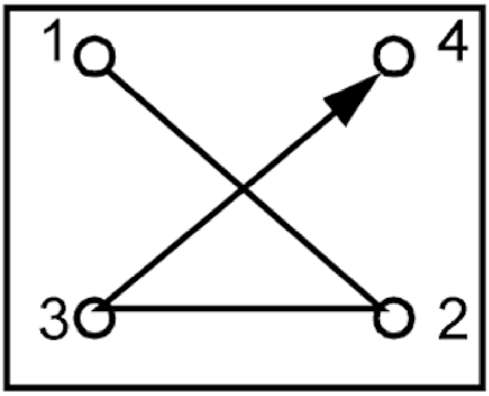


2. Lay CRT face down on a soft cloth.
3. Note position of yoke with centering tabs and remove from defective CRT.
4. Remove CRT DAG ground from defective CRT. Mount it on the replacement CRT exactly as it was on the defective CRT.

Note:
Replacement CRT is supplied with H.V. anode lead attached.

5. Wire the anode lead wire.
6. Install yoke with other CRT neck assemblies on CRT neck in the same order and position as removed from the defective CRT.
7. Press yoke against bell of CRT and tighten the clamp just snug enough so it will not easily shift.
8. Assemble CRT focus lens assembly to new CRT with (4) screws. Make sure focus lens adjustment nut is in the same location as on other CRT focus lens

CRT screw tightening order

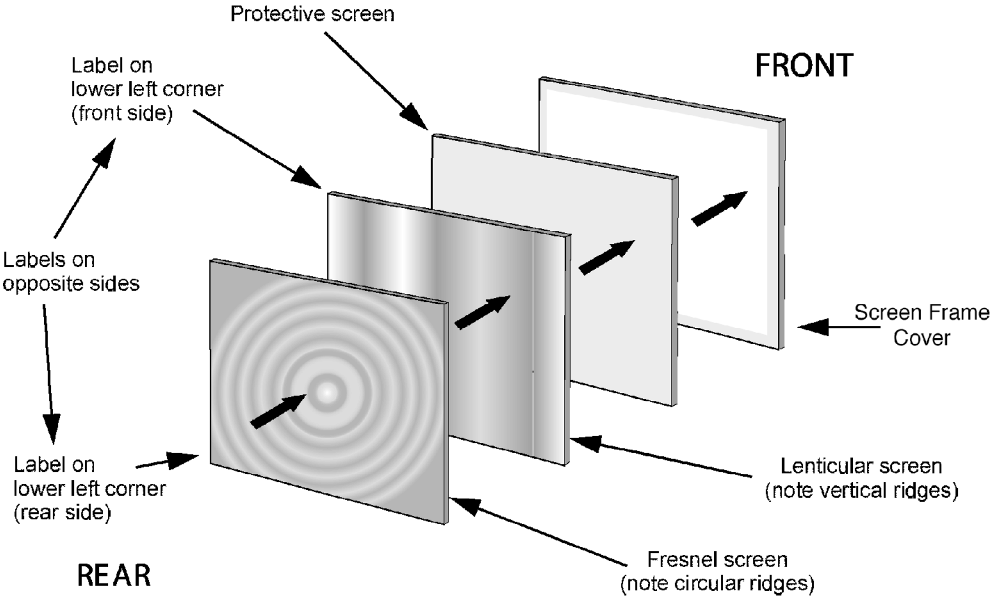


Note:

Please assemble with screws in the order shown and tighten with the same torque.

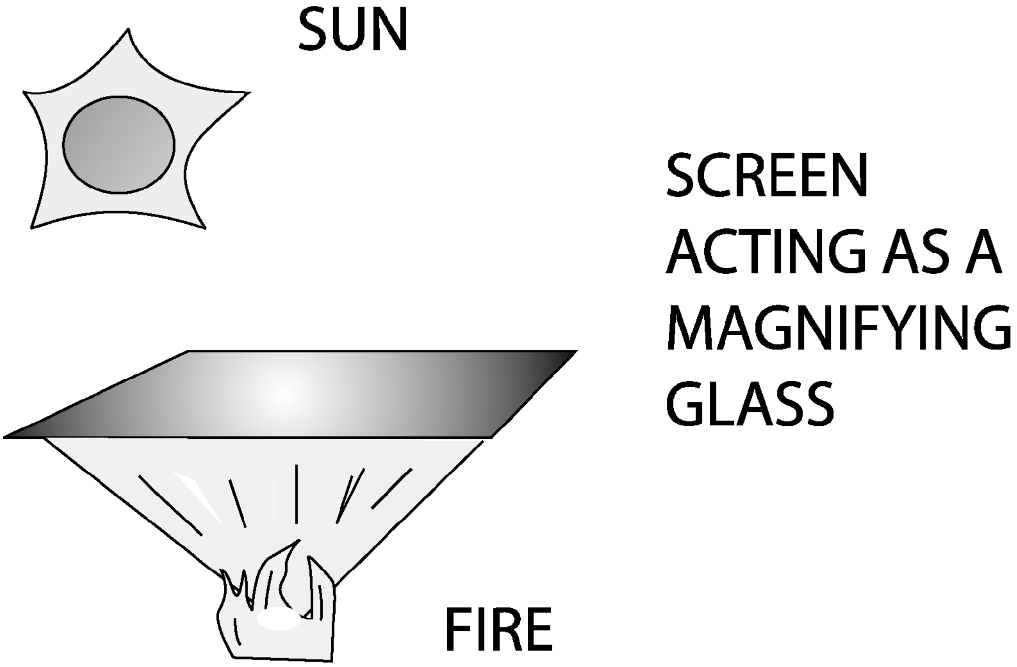
13.3. PTV screen assemblies

Screen assemblies


Protective screen
FRONT
Label on
lower left corner
(front side)
Labels on
opposite sides
Screen Frame
Cover
Label on
lower left corner
(rear side)
Lenticular screen
(note vertical ridges)
REAR
Fresnel screen
(note circular ridges)

13.4. Screen assemblies warning

When storing or disposing of screen assemblies, be sure not to place them in direct sunlight. These screens may act as a magnifying glass and could cause a fire.


SUN
SCREEN
ACTING AS A
MAGNIFYING
GLASS
FIRE

14. B + voltages table

Preparation:

Set the following controls

- **Picture to Normal**
- **Bright to Normal**
- **Volume to MIN (0)**

Procedure:

1. **Apply a COLOR BAR pattern**
2. **Connect the negative lead of the digital voltmeter to TPGND1 (cold ground).**
3. **Connect the positive lead of the digital voltmeter to each test point and confirm the B+ voltages.**

No.	D-Board Test point	Voltage
1	TPD14	138.6±1.0
2	TPD13	20.0±1.5
3	TPD12	19.5±1.5
4	TPD11	-20.5±1.5
5	TPD10	22.5±1.5
6	C845 (-)	-22.5±1.5
No.	A-Board Test point	Voltage
1	TP41	9.0±0.5
2	TP44	5.0±0.5
3	TP39	3.3±0.3
4	TP54	2.5±0.25
5	TP55	1.8±0.5

15. Service Mode (electronic controls)

This receiver has electronic technology using the IIC bus concept. It performs as a control function and it replaces many mechanical controls. Instead of adjusting mechanical controls individually, many of the control functions are now performedby using “on screen display menu”. (The service adjustment mode.)

NOTE:

It is suggested that the technician reads all the way through and understand the following procedure for entering/exiting the service adjustment mode; then proceed with the instructions working with the receiver. When becoming familiarwith the procedure, the flow chart for service mode may be used as a quick guide.

15.1. Quick entry to service mode:

When minor adjustments need to be done to the electronic controls, the method for entering the service mode without removal of the cabinet back is as follows, using the remote control:

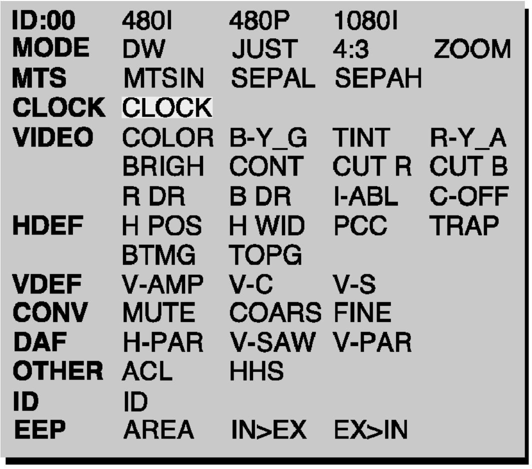
1. **Select SET-UP icon, enter “OTHER ADJ.” menu and select CABLE**

mode option.

2. Select TIMER icon and set SLEEP time for 30 Min.
3. Press “VOL UP ↑ ” to exit menus.
4. Tune to the Channel 124.
5. Adjust VOLUME to minimum (0).
6. Press VOL ← (decrease) on receiver. Red “CHK” appears in upper corner.

To toggle between aging and service modes:
While the “CHK” is displayed on the left top corner of the CRT, pressing “ACTION” and “VOL” UP on the TV simultaneously will toggle between the modes. Red “CHK” for service modeand yellow “CHK” for aging.

7. Press POWER on the remote control to display the service adjustment modes menu, select adjustment by pressing the VOL right/left buttons and CH up/down buttons on the remote and ACTION to enter the adjustment.



ID:00	480I	480P	1080I	
MODE	DW	JUST	4:3	ZOOM
MTS	MTSIN	SEPAL	SEPAH	
CLOCK	CLOCK			
VIDEO	COLOR	B-Y_G	TINT	R-Y_A
	BRIGH	CONT	CUT R	CUT B
	R DR	B DR	I-ABL	C-OFF
HDEF	H POS	H WID	PCC	TRAP
	BTMG	TOPG		
VDEF	V-AMP	V-C	V-S	
CONV	MUTE	COARS	FINE	
DAF	H-PAR	V-SAW	V-PAR	
OTHER	ACL	HHS		
ID	ID			
EEP	AREA	IN>EX	EX>IN	

15.2. Exiting the service mode:

This PTV goes out from service mode when it is unplugged or turned OFF. To exit the service mode, turn the TV OFF or unplug the PTV from AC.

Other method

Press ACTION and POWER on the receiver simultaneously for at least 2 seconds.The receiver momentarily performs a self-check, with a preset level of sound. To completely make an entire reset of the PTV unplug AC cord from AC outlet and plug it backin, then turn PTV power ON.Any programmed channels, channels caption data and some others user defined settings will be erased after performing this reset.

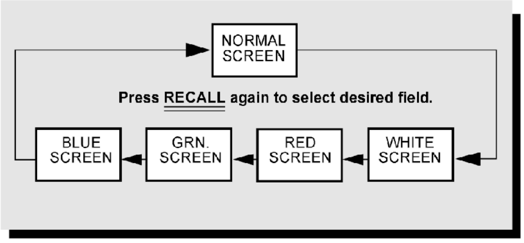
IMPORTANT NOTE

Always check that PTV exits the service mode

To check colors:

Press RECALL on the remote control when in service mode (red "CHK" is displayed) to enter the purity field check mode.

Color check



15.3. Service adjustment default values for items

DESCRIPTION	REGISTER	FORMAT	
		NTSC (480i)	HD (1080i)
MTS INPUT LEVEL	MTSIN	21	N/A
LOW SEPARATION	SEPAL	06	N/A
HIGH SEPARATION	SEPAH	19	N/A
CLOCK ADJ	CLOCK	128	N/A
COLOR	COLOR	1F	17
MAGENTA TINT ADJ	B-Y_G	40	46
TINT	TINT	89	82
YELLOW TINT ADJ	R-Y_A	AA	87
SUB-BRIGHTNESS	BRIGH	02 9C	02 C6
SUB-CONTRAST	CONT	03 0E	02 BD
RED CUT-OFF	CUT R	01 C0	01 C0
BLUE CUT-OFF	CUT B	01 C0	01 C0
RED DRIVE	R DR	50	N/A
BLUE DRIVE	B DR	50	N/A
INDIVIDUAL ABL CHECK	I-ABL	VARIABLE	VARIABLE
CUT OFF ADJ	C_OFF	00	00
HORIZONTAL POSITIONING	H POS	04 32	01 83
HORIZONTAL WIDTH	H WID	8A	51
PINCUSHION CORRECTION	PCC	55	40
TRAPEZOID	TRAP	81	81
BOTTOM CORNER PINCUSHION	BTMG	58	B0
TOP CORNER PINCUSHION	TOPG	5A	B4
VERTICAL SIZE	V-AMP	9B	00 94
VERTICAL LINEARITY	V-C	88	87
VERTICAL S CORRECTION	V-S	56	59

DESCRIPTION	REGISTER	FORMAT	
		NTSC (480i)	HD (1080i)
VERTICAL TEST POSITION	TEST POS V	N/A	13
HORIZONTAL TEST POSITION	TEST POS H	N/A	13
LOW PHASE	PHASE LOW	N/A	A0
HI PHASE	PHASE HI	N/A	05
HORIZONTAL OSD POSITION	OSD POS H	N/A	45
VERTICAL OSD POSITION	OSD POS V	N/A	6A
MUTE CONVERGENCE	MUTE	00	00
COARSE ADJ	COARS	00	00
FINE ADJ	FINE	00	00
H DAF ADJUSTMENT	H-PAR	0	0
V SAW DAF ADJUSTMENT	V-SAW	0	0
V DAF ADJUSTMENT	V-PAR	0	0
ID*	ID	00	00
AREA	AREA	FIX	FIX

***IMPORTANT:**

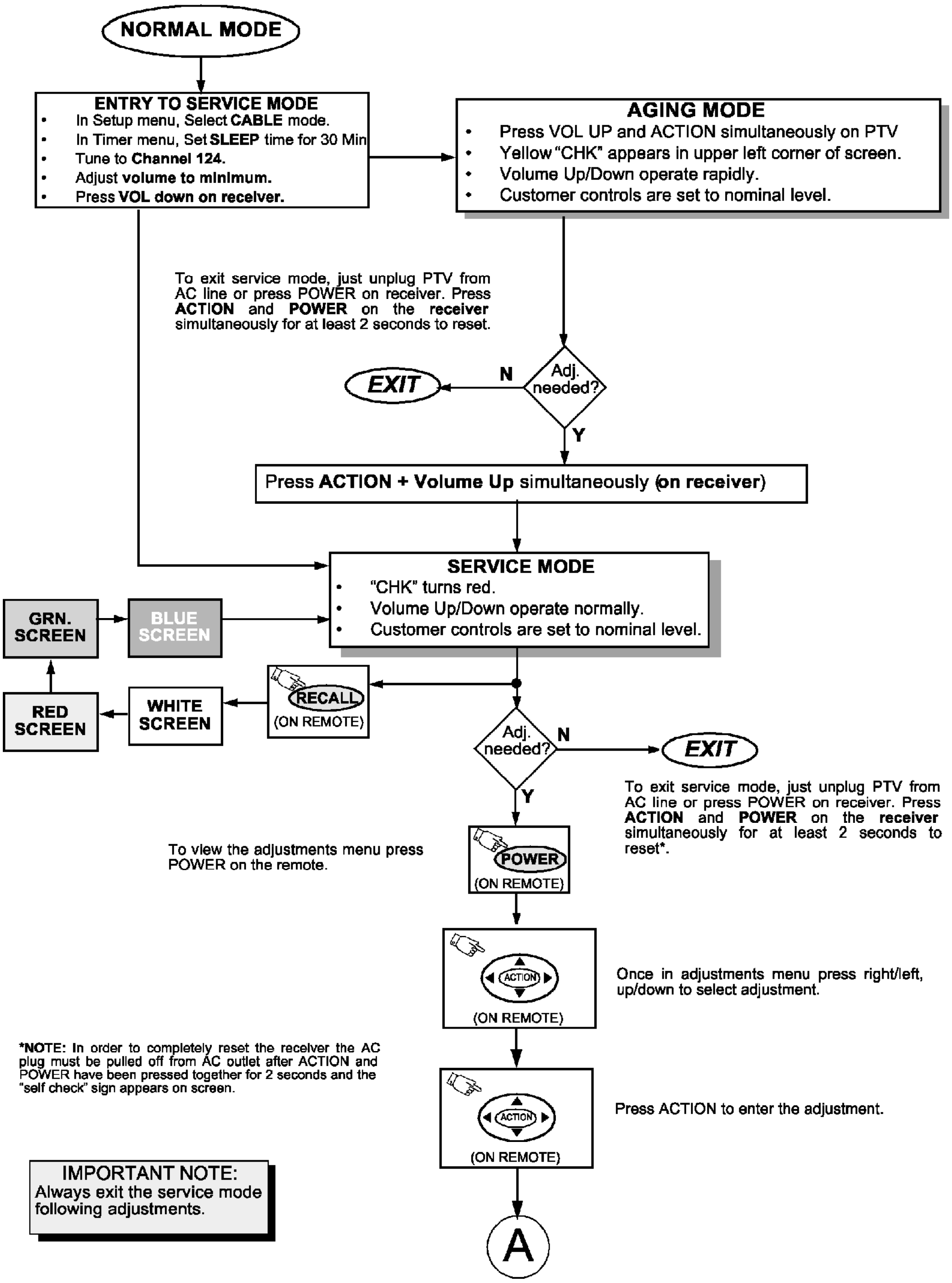
The default ID register value should not be modified in any way, it has been already set to a factory default value specifically for the models listed in this manual.

NOTE:

The above table shows the default values for the service items, this values can change depending on the serviced PTV.

15.4. Instructional flow for service mode.

Instructional flow chart for service mode


NORMAL MODE
ENTRY TO SERVICE MODE
• In Setup menu, Select CABLE mode.
• In Timer menu, Set SLEEP time for 30 Min
• Tune to Channel 124.
• Adjust volume to minimum.
• Press VOL down on receiver.
AGING MODE
• Press VOL UP and ACTION simultaneously on PTV
• Yellow "CHK" appears in upper left corner of screen.
• Volume Up/Down operate rapidly.
• Customer controls are set to nominal level.
EXIT
N
Adj. needed?
Y
Press ACTION + Volume Up simultaneously (on receiver)
SERVICE MODE
• "CHK" turns red.
• Volume Up/Down operate normally.
• Customer controls are set to nominal level.
GRN. SCREEN
BLUE SCREEN
RED SCREEN
WHITE SCREEN
RECALL
(ON REMOTE)
Adj. needed?
N
EXIT
Y
POWER
(ON REMOTE)
ACTION
(ON REMOTE)
ACTION
(ON REMOTE)
A

To exit service mode, just unplug PTV from AC line or press POWER on receiver. Press **ACTION** and **POWER** on the **receiver** simultaneously for at least 2 seconds to reset.

To exit service mode, just unplug PTV from AC line or press POWER on receiver. Press **ACTION** and **POWER** on the **receiver** simultaneously for at least 2 seconds to reset*.

To view the adjustments menu press POWER on the remote.

Once in adjustments menu press right/left, up/down to select adjustment.

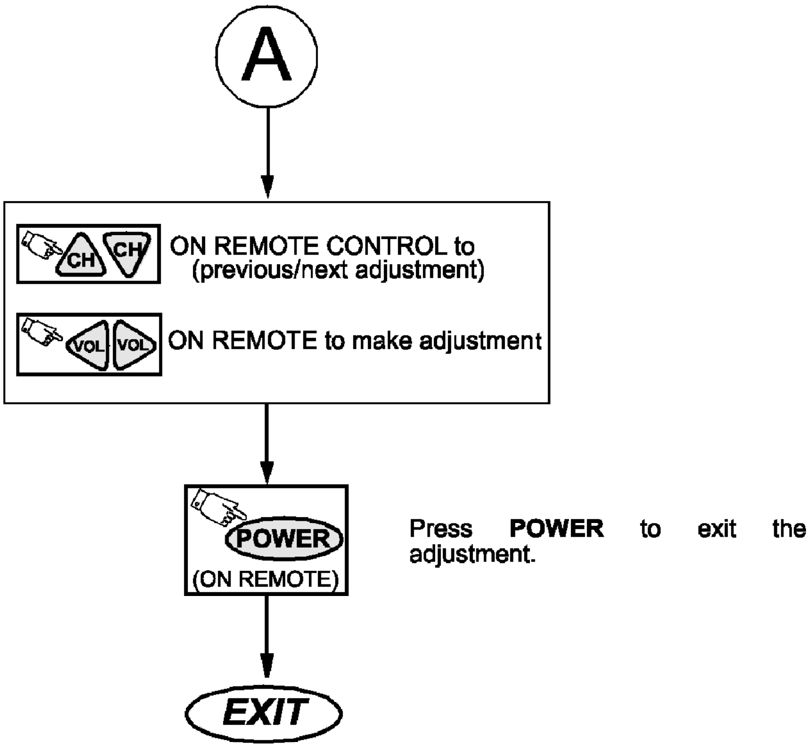
Press ACTION to enter the adjustment.

***NOTE:** In order to completely reset the receiver the AC plug must be pulled off from AC outlet after ACTION and POWER have been pressed together for 2 seconds and the "self check" sign appears on screen.

IMPORTANT NOTE:
Always exit the service mode following adjustments.

15.5. Instructional flow for service mode (continued...)

Instructional flow chart for service mode - *(continued)*


A
CH CH ON REMOTE CONTROL to (previous/next adjustment)
VOL VOL ON REMOTE to make adjustment
POWER
(ON REMOTE)
Press **POWER** to exit the adjustment.
EXIT

Press POWER to exit DACs MENU then press **ACTION** and **POWER** on the **PTV** simultaneously for at least 2 seconds to exit service mode and reset*.

***NOTE:** In order to completely reset the receiver the AC plug must be pulled off from AC outlet after ACTION and POWER have been pressed together for 2 seconds and the "self check " sign appears on screen.

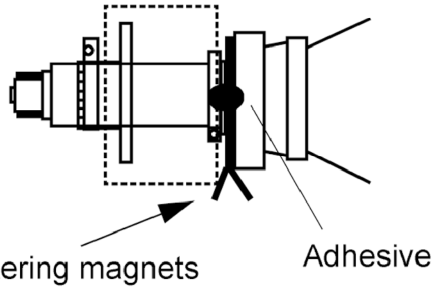
16. CRT Set Up

CAUTION:

Insure that yoke plugs are reconnected on D-Board before turning the PTV ON to prevent damage to the horizontal output transistor and/or CRTs.

1. **Connect test generator to the antenna terminal and set for a monoscope pattern.**
2. **Loosen yoke clamp, seat yoke against bell of CRT and rotate to correct yoke tilt (compare to adjacent CRT). Tighten yoke clamp.**
3. **Remove adhesive from centering tabs and set centering tabs for zero correction.**

Adhesive removal



4. **Cover replacement CRT lens and static converge the tubes not replaced, if needed. Check size and linearity of pattern and adjust as required**
5. **Uncover replacement CRT lens and cover other two CRT lenses. Adjust electrical and optical focus (lens), if required.**
6. **Uncover all CRT lenses and use yoke centering magnet to converge replacement CRT (in center area of screen only) with other two CRTs. Disregard of convergence in areas other than center area.**
7. **Perform white balance adjustments.**

16.1. Dynamic focus adjustments

1. **Focus adjustments should be performed after 1 hour of aging.**
2. **Use oscilloscope with 100 : 1 probe.**
3. **Apply a crosshatch pattern to adjust focus.**
4. **Adjust the red, blue and green focus VR on the focus block for best focus of overall picture of each CRT.**
5. **To change DAF DATA, enter to service mode, then press POWER on remote to display DACs menu, then select DAC by pressing CH (RIGHT/LEFT) and VOL (UP/DOWN), then press ACTION to enter to DAC, then adjust by pressing VOL (RIGHT/LEFT);press ACTION, to save press ACTION again or OTHER key to exit without saving.**

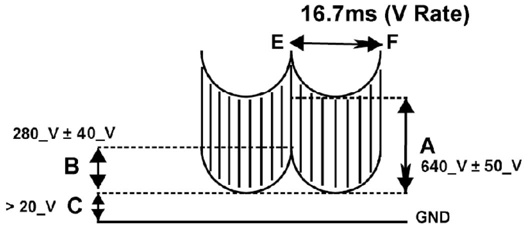
Procedure:

1. **Enter to service mode and set the following default DATA**

H-PAR	+390
V-SAW	+2
V-PAR	+20

2. **Connect the scope probe to R1522 (D30 side), GND to Q551 heat sink.**
3. **Confirm that level of A is 640 ± 50V, adjust / “H-PAR” DAC to set to specification level.**
4. **Confirm that voltage level in D30 is similar between point E and F, if not, adjust V-SAW DAC.**
5. **Confirm that level of B is 280 ± 40 V, adjust / “V-PAR” DAC to set to specification level.**
6. **Confirm that level of C is more than 20 V, adjust / “H-PAR” DAC to set to specification level.**

Dynamic focus adjustment waveform



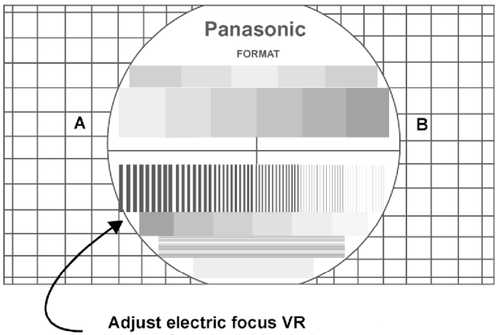
16.2. Focus - Electrical & optical adjustments

(use for minor adjustment or for final adjustment, for complete adjustment see following section.)

Electrical Adjustment

1. **Apply a crosshatch with dots pattern.**

Lens focus adjustment

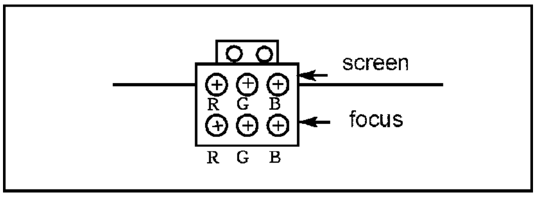


Adjust electric focus VR and lens focus on this circle

	RED	GREEN	BLUE
Electric focus	B	A/B	A
Optical Focus	B	A/B	A

2. Set VIDEO “C_OFF” DAC from 00 to 02, and project only red. Adjust red focus VR so that focus is best.

Focus pack



3. Adjust red lens focus (mechanical) until focus is best.
4. Adjust red focus VR again.
5. Set VIDEO “C_OFF” DAC from 02 to 01, and project only green.
6. Repeat steps for green only.
7. Set VIDEO “C_OFF” DAC from 01 to 03, and project only blue.
8. Repeat steps for blue only.

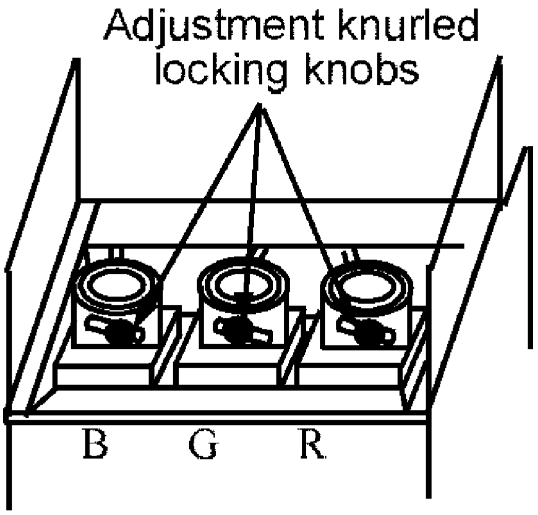
16.2.1. Focus - Optical lens adjustment

Optical adjustments

NOTE:
This adjustment normally should not require resetting unless the lenses have been replaced or adjustment has changed.

1. Optical focus adjustment is located on the top of each CRT lens system. Loosen the adjustment knurled locking knob.

Optical lens focus adjustment



REAR VIEW

2. Turn the PTV ON. Apply and view a crosshatch with dots pattern.
3. Adjust each lens focus for best focus while viewing each CRT.
4. Cover the red and blue CRT, projecting green only. Rotate the green lens for best focus around screen center area.
5. Do the same for the red focus lens while projecting red only.
6. Repeat for blue.
7. Align VM coils.

17. Electronic Adjustments

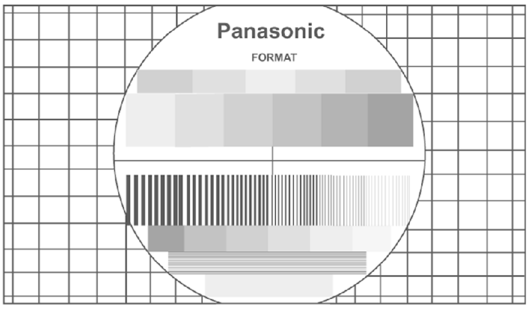
17.1. Horizontal phase adjustment (H POS)

This adjustment is intended to correct the horizontal position of the picture

NOTE:
1080i, 480p, 480i pattern can be obtained from Panasonic’s TU-DST51 set-top box DTV decoder.

1. Apply a HD 1080i crosshatch pattern that lets adjust the image to correct vertical size (see above note).
2. Adjust electrical and optical focus of red, green and blue colors so that focus is best at the center of screen.
3. Set convergence MUTE DAC from 00 to 01, and confirm disabled convergence.

4. In service mode set VIDEO “C_OFF” DAC from 00 to 01 (to project only green).
5. Set DAC MUTE from 00 to 01 (disabling digital convergence).
6. Turn green deflection yoke until line is perfectly horizontal.
7. Adjust “H POS” DAC data so that pattern is in the center of screen.
8. Enable digital convergence by changing DAC MUTE from 01 to 00.
9. Set VIDEO “C_OFF” DAC from 01 to 00.



17.2. Centering magnets adjustment

NOTE:
1080i, 480p, 480i pattern can be obtained from Panasonic’s TU-DST51 set-top box DTV decoder.

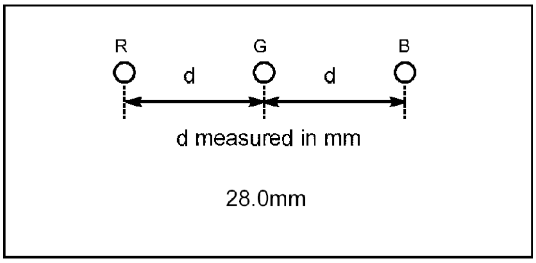
Procedures:

1. Apply a crosshatch pattern with dots.
2. Set VIDEO “C_OFF” DAC from 00 to 01 to project only green.
3. Set DAC MUTE from 00 to 01 (disabling digital convergence).
4. Loose the deflection coil screw on the green CRT.
5. Confirm that the horizontal center line is perfectly horizontal to screen frame. If not turn deflection yoke.
6. Adjust green deflection coil until the horizontal center line is horizontal.
7. Adjust centering magnets until the green pattern is equal on left and right. Adjust also for horizontal and vertical tilt.

NOTE:
Push deflection coil to top of CRT neck, then tighten deflection screw after adjusting each CRT centering and tilt.

8. Set VIDEO “C_OFF” DAC from 01 to 03 to project only blue. Adjust deflection coil until the horizontal center line matches the pattern of the grid and is leveled.
9. Adjust blue centering magnets until the pattern center is at the appropriate distance as indicated on the following figure.

Centering magnets adjustment



10. Set VIDEO “C_OFF” DAC from 03 to 02 to project only red.
11. Adjust red deflection coil until the horizontal center line matches the pattern of the grid and is leveled.
12. Adjust red centering magnets until the pattern center is at the appropriate distance as indicated on figure.
13. Enable digital convergence by changing DAC MUTE from 01 to 00.
14. Set VIDEO “C_OFF” DAC from 02 to 00. Following the adjustment, make sure that all deflection coils are pushed completely toward the CRT cones and that all screws are tightened.

17.3. Pincushion adjustment (PCC)

This adjustment is intended to correct curved sides of the picture.

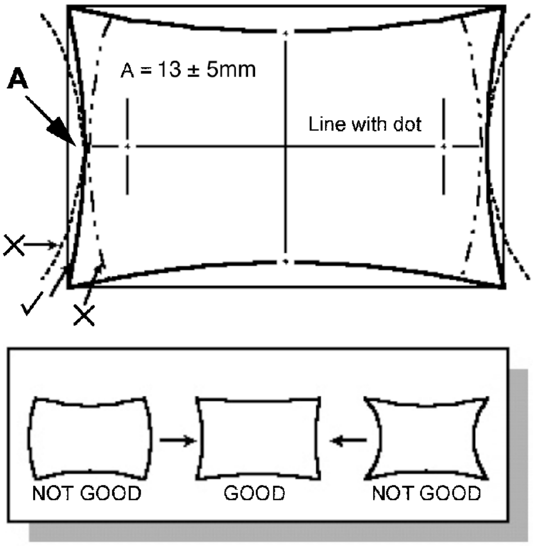
NOTE:
1080i, 480p, 480i pattern can be obtained from Panasonic’s TU-DST51 set-top box DTV decoder.

Procedure:

1. Apply a 1080i HD crosshatch pattern that lets adjust the image to correct curved sides (see above note).
2. Set VIDEO “C_OFF” DAC from 00 to 01 to project only green.
3. Set DAC “MUTE” from 00 to 01 (disabling digital convergence).
4. If the distance at “A” is not 13 ± 5mm, enter H DEF “H WID” DAC and adjust with VOLUME UP/DOWN keys until it measures 13±

5mm.

Pincushion



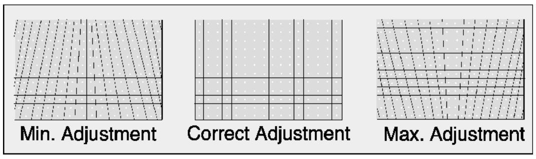
5. If not all corners of cross hatch appear in screen, enter V DEF “V-AMP” DAC and adjust until they appear.
6. Confirm that measurement of “A” has not changed.
7. Enable digital convergence by changing DAC MUTE from 01 to 00.
8. Set VIDEO “C_OFF” DAC from 01 to 00.

17.4. Trapezoid adjustment (TRAP)

NOTE:
1080i, 480p, 480i pattern can be obtained from Panasonic’s TU-DST51 set-top box DTV decoder.

Procedure:

1. Apply a 1080i HD crosshatch pattern.
2. Set VIDEO “C_OFF” DAC from 00 to 01 and project only green.
3. Set DAC MUTE from 00 to 01 (disabling digital convergence).
4. Enter service mode, select “TRAP” and adjust DATA with VOLUME keys in remote so that lines at right and left are vertical like a solid line.



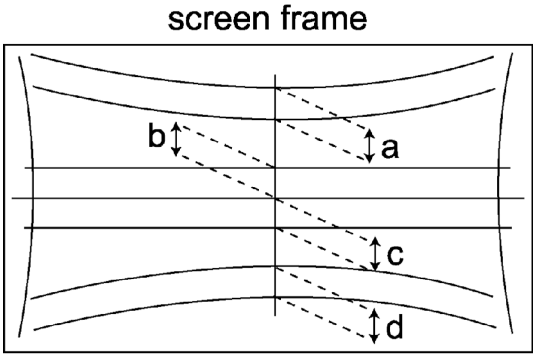
5. Enable digital convergence by changing DAC MUTE from 01 to 00.
6. Set VIDEO “C_OFF” DAC from 01 to 00.

17.5. Vertical linearity adjustment (V-C and V-S)

This adjustment is intended to make the picture vertically proportional (top, center and bottom)

NOTE:
1080i, 480p, 480i pattern can be obtained from Panasonic’s TU-DST51 set-top box DTV decoder.

1. Apply a pattern that lets adjust the image to correct vertical linearity (see above note).
2. Set VIDEO “C_OFF” DAC from 00 to 01 (to project only green).
3. Set DAC MUTE from 00 to 01 (disabling digital convergence).
4. Adjust centering magnets so that the center of the pattern get aligned with screen frame center.
5. Adjust VDEF “V-C” and “V-S” DAC until vertical size is proportional on top and bottom. Confirm to correct linearity in the middle of the screen.
6. Set DAC MUTE from 01 to 00 (disabling digital convergence).
7. Set VIDEO “C_OFF” DAC from 01 to 00.



a=d, b=c

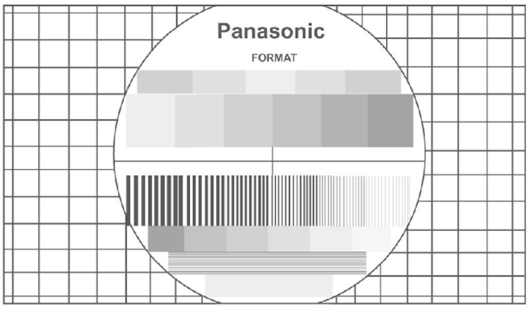
17.6. Vertical size adjustment (V-AMP)

This adjustment is intended to correct the vertical size of the picture.

NOTE:

1080i, 480p, 480i pattern can be obtained from Panasonic's TU-DST51 set-top box DTV decoder.

1. **Apply a pattern that lets adjust the image to correct vertical size (see above note).**
2. **Set VIDEO "C_OFF" DAC from 00 to 01 (to project only green).**
3. **Set DAC MUTE from 00 to 01 (disabling digital convergence).**
4. **Adjust centering magnets so that the center of the pattern get aligned with screen frame center.**
5. **Adjust VDEF "V-AMP" DAC until vertical size is proportional on top and bottom.**
6. **Set DAC MUTE from 01 to 00 (disabling digital convergence).**
7. **Set VIDEO "C_OFF" DAC from 01 to 00.**

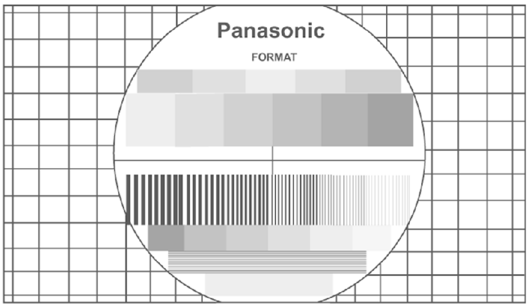


17.7. Horizontal size adjustment / (H_POS)

This adjustment is intended to correct the horizontal position of the picture.

NOTE:
1080i, 480p, 480i pattern can be obtained from Panasonic's TU-DST51 set-top box DTV decoder.

1. **Apply a 1080i HD pattern that lets adjust the image to correct horizontal position (see above note).**
2. **Set VIDEO "C_OFF" DAC from 00 to 01 to project only green.**
3. **Set DAC "MUTE" from 00 to 01 (disabling digital convergence).**
4. **Turn green deflection yoke until line is perfectly horizontal.**
5. **Adjust "H WID" DAC data so that pattern has the correct horizontal size.**



6. Set DAC MUTE from 00 to 01 (disabling digital convergence).
7. Set VIDEO “C_OFF” DAC from 01 to 00.

17.8. Horizontal size adjustment (H WID)

This adjustment is intended to adjust horizontal width of the picture.

NOTE:
1080i, 480p, 480i pattern can be obtained from Panasonic’s TU-DST51 set-top box DTV decoder.

1. Apply a pattern that lets adjust the horizontal size.
2. Set VIDEO “C_OFF” DAC from 00 to 01 to project only green.
3. Set DAC “MUTE” from 00 to 01 (disabling digital convergence).
4. In service mode, adjust “H WID” DAC until the picture horizontal size is balanced at left and right side of screen.
5. Set DAC “MUTE” from 01 to 00 (disabling digital convergence).
6. Set VIDEO “C_OFF” DAC from 01 to 00.

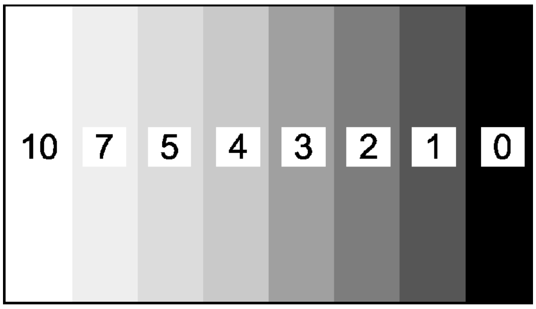
17.9. Sub-Bright adjustment (BRIGH) and ABL check

This adjustment is intended to set 7.5 IRE signal to black level mode.

Procedure:

1. Set PICTURE MODE TO VIVID, PICTURE settings to normal, NATURAL COLOR to OFF and COLOR TEMPERATURE to NORMAL.
2. Connect meter (positive lead) to D31 pin 2 and (negative lead) to D31 pin 1.
3. Apply a color bar with no color or if available a grey levels pattern (see picture).

Gray bar pattern.



4. Adjust DAC "BRIGH" data so that bar 1 becomes near black like bar 0.
5. Apply an HD 1080i signal and repeat this adjustment for HD 1080i mode.
6. To check ABL apply a white pattern and put user bright control (BRIGHTNESS in Picture menu) control to max. and confirm that reading on meter is 12.7 ± 0.8V.

17.10. Individual ABL Check (I-ABL)

Procedure:

1. In PICTURE menu set the picture to "NORMAL".
2. Apply a pure blue flat signal from a signal generator or another source.
3. In service mode select "I-ABL" DAC from service menu.
4. Confirm that the 3 hex values that appear on screen (below the "I-ABL" label) are close to 0, i.e. "00 00 00"
5. If the "I-ABL" values differ too much from 0, repeat bright and ABL adjustment again.

17.11. Red, green & blue screen Cut-Off

1. Use either a no input signal condition or raster from the NTSC generator.
2. Observing the green tube directly or via a reflective surface, adjust the VR on focus pack for the green tube for minimum noise.
3. Adjust the noise level in the red and blue tubes to match the noise level in the green tube.

17.12. White balance adjustment

NOTE:
Use a 7 gray step pattern in this adjustment. This pattern can be obtained from a NTSC generator applying a bar signal without color.

This adjustment requires the service user skills in observing what a screen without color should look like (white picture).

Preparation:

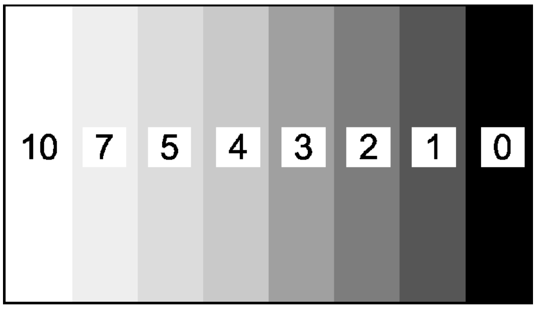
1. Set the following in the user picture menu as follows:

- **PIC MODE to VIVID**
- **COLOR to minimum (0)**
- **PICTURE to max (63)**
- **BRIGHT to center (31)**
- **SHARPNESS to minimum (0)**
- **TINT to center (31)**
- **NATURAL COLOR to OFF**
- **COLOR TEMPERATURE to COOL**

1. Enter service mode.

2. Apply a black and white pattern to one of the video inputs (see above note) color bar with no color.

Gray bar pattern.



3. Enter service mode menu, select “C_OFF” register and change value from 00 to 01 to display green color only.

4. Adjust screen VR until bars with 7 and 5 IRE do not have any difference tone between them.

5. Select “C_OFF” register and change value from 01 to 02 to display

red color only.

6. Adjust screen VR until bars with 7 and 5 IRE do not have any difference tone between them.
7. Select “C_OFF” register and change value from 02 to 03 to display blue color only.
8. Adjust screen VR until bars with 7 and 5 IRE do not have any difference tone between them.
9. Select “C_OFF” register and change value from 03 to 03 to display all three colors and check white color.

17.12.1. High light white balance adjustment

1. Adjust DAC R_DR for red and B_DR for blue adjustments.
2. Make sure the screen is not blue or green. The screen should be white in the white area.
3. Check the black and white area for a black and white picture with even shades of gray and no color tint in the picture.

17.12.2. Low light white balance adjustment

1. Adjust DAC CUT_R for red and DAC CUT_B for blue.
2. Check the screen for even white in all areas, no color.
3. Check the black and white pattern for a black and white picture, even shades of gray and no color tint in the low light areas.
4. Repeat the high light and low light white balance again until the white balance tracks from high light to low light.

17.13. Color adjustment (TINT, B-Y_G, R-Y_A)

NOTE:
1080i, 480p, 480i pattern can be obtained from Panasonic’s TU-DST51 set-top box DTV decoder.

This adjustment requires that the servicer use the skills in observing what a colorbar pattern should looks like.

Preparation:

1. Set the following in the user picture menu as follows:

    - PIC MODE to VIVID

- COLOR to center (31)
- PICTURE to max (63)
- BRIGHT to center (31)
- SHARPNESS to min. (0)
- TINT to center (31)
- NATURAL COLOR to OFF
- COLOR TEMPERATURE to COOL

Procedure:

1. Apply a color bar pattern
2. Adjust DAC “TINT” so that the fourth bar from right to left becomes purple and good color balance.
3. If the adjustment is high, the bar will look pinkish, if it is low will look bluish.
4. Adjust “B-Y_G” so blue look natural, and the rest of the colors become in balance.
5. Adjust “R-Y_A” so red look natural, and rest of the colors become in balance.
6. Check that white bar is real white, no bluish or reddish or tending to become grey.

17.14. Tint and color check

Set picture mode to VIVID mode. Again, the service ability to see color and the balance of color is important for these adjustments.

Tint check

1. In picture menu set PICTURE NORMAL to YES.
2. Apply color bars to the video input.
3. Magenta is composed of two colors, blue and red.
4. Check to see that magenta does not have too much blue or too much red.
5. Check cyan. Cyan is composed of blue and green. It should not have too much blue or green.

6. Use a test signal from a VCR or DVD disk that has a pre-recorded close up of a signal that has good flesh tones.
7. The signal from the VCR or DVD player should look normal.

Color Check

Using a clean RF or video signal, set the color level so that it does not saturate or appear harsh. Make sure that color is not set so that it appears dull and washed out. Look for natural colors, try to adjust the picture to appear as a normalphotograph.

17.15. MTS circuit adjustment

Note:

It is important to adjust the MTS circuit in the order shown below.
The MTS circuit adjustment require two steps:

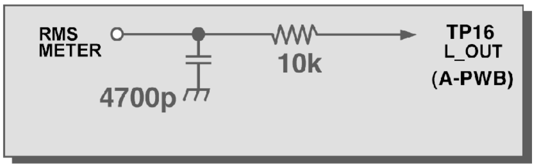
1. Input level adjustment.
2. Stereo separation adjustment.

Input level adjustment (MTSIN)

Preparation:

1. Connect an RMS meter (A.C. range) with filter jig as shown:

Filter jig



2. Connect an RF signal generator to the RF antenna input.

Procedure:

1. Apply the following signal from the RF signal generator: / Video: 100 IRE flat field, 30% modulation. / Audio: 300Hz, 100% modulation, monaural (70 ± 5dB, 75 Ω open, P/S 10dB).Make sure to turn off 75 μ s pre-emphasis.
2. Adjust DAC “MTSIN” MTS-INPUT data until the voltage measured is 106 ± 6.0mV RMS.

Stereo separation adjustment (SEPAL & SEPAH)

Preparation:

1. **Connect an RF signal generator to the RF antenna input.**
2. **Connect an oscilloscope probe to TP17 (R_OUT, A-board).**

Procedure:

1. **Set PTV to Stereo Mode (in the audio menu).**
2. **Apply the following signal from the RF signal generator: / Video: 100 IRE flat field, 30% modulation. / Audio: 300Hz, 30% modulation, stereo (left only) (70dB ± 5dB, 75 Ω OPEN, P/S 10dB).**

Note:
Set the 30% modulation with the pilot light SW and N.R. switches OFF then turn them ON while testing.

3. **Adjust MTS low level separation "SEPAL" DAC data (in the service menu) until the amplitude of the measured waveform on the scope is minimum.**
4. **Apply the following signal from the RF signal generator: / Video: 100 IRE flat field, 30% modulation. / Audio: 3KHz, 30% modulation, stereo (left only). / (70dB ± 5dB, 75 Ω OPEN, P/S10dB).**

Note:
Set the 30% modulation with the P.L and N.R. switches OFF then turn them ON while testing.

5. **Adjust MTS High Level Separation "SEPAH" DAC data until the amplitude of the waveform measured on the scope is minimum.**
6. **Repeat above steps 2 through 5 until the amplitude is at minimum for both signals.**

17.16. Clock Adjustment (CLOCK)

Preparation:
Connect the frequency counter from TP24 (A-Board) to cold ground.

Note:
Frequency Counter probe capacitance should be 8pF or less.

Procedure:

1. **Turn the PTV “ON” with the A.C. power applied.**
2. **Measure TP24 (A-Board) for frequency and record the reading.**

Note:
Pin measurement must have at least four digits of resolution following the decimal point. Example : 000.0000

3. **Place the PTV into service mode for making electronic adjustment, select the clock adjustment DAC CLOCK and change value to 128.**
4. **Calculate and set CLOCK based on the following formula:**

$$\boxed{CLOCK = 128 + 0.450 x 106 x \frac{\{732.422 - \mathrm{TP24}\,[\mathrm{Hz}]}{732.4220}\}}$$

Note:
TP24 measurement will not change regardless of the value stored in CLOCK.

18. Convergence adjustment

Turn PTV on and allow it to warm up for 30 minutes prior to perform adjustments (apply a WHITE PATTERN).

Helpful Hint:
EEPROM jig can be used to adjust convergence, by copying convergence adjustment from a convergence adjusted PTV to other. Refer to EEPROM copy jig section on this service manual. Also EEPROM copy jig can be used to back-up the data before to performadjustments.

NOTE:
1080i, 480p, 480i pattern can be obtained from Panasonic’s TU-DST51 set-top box DTV decoder.

IMPORTANT NOTICE:
It is strongly recommended to first read and understand the following section prior to make any

adjustment.

This PTV uses the scheme described below to correct for misconvergence of the three CRT projection tubes. There are various modes to this operation.

Preparation:

Place the convergence alignment template (see Convergence alignment template section on this manual) over the PTV screen. Align the center lines of the template with the mechanical center markers on the PTV screen frame. If the template is not available,create one using the dimensions provided in Convergence alignment template section on this manual.Remote control must be used during the procedure.

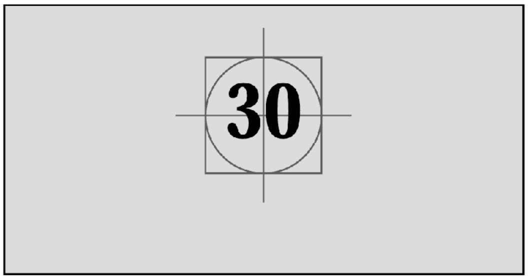
Procedure:

Apply the convergence alignment template to the PTV screen frame to converge the green raster only. Remove the convergence alignment template following this alignment. The red and blue rasters can then be aligned to the green raster.

Raster Set-Up:

1. **Enter to service mode (red CHK).**
2. **In SET-UP (menu) enter to “Other Adj.” menu and set CONVERGENCE values (GH, GV) to 0.**
3. **Cover red & blue lens with caps.**
4. **Apply a pattern to adjust with 1080i HD format:**
5. **Select “COARSE” DAC, then press ACTION to enter to “Coarse adjustment” mode.**
6. **Press “0” key on remote.**
7. **Press ACTION key on remote to enter to “TEST_POS” mode.**
8. **Move pattern by pressing VOL right - left and CH up - down so that the cursor center overlap monoscope pattern center.**

Aligned cross-hair pattern with center of picture pattern

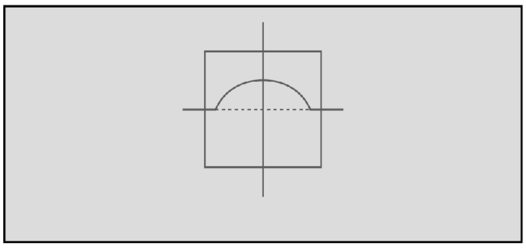


9. **Press “5” key on remote to exit superimpose mode (monoscope**

pattern disappear).

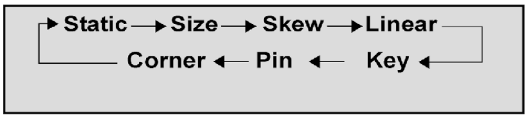
10. **Press “TV/VIDEO” key to enter “DATA_POS” mode**
11. **Adjust by pressing VOL right - left so that peak of curve is the same position as center of cursor.**

Symmetrical shape



12. **Press “TV/VIDEO” key on remote to enter “OSD_POS” mode.**
13. **Press “5” key on remote so that monoscope pattern appears (superimpose mode)**
14. **Move cursor by pressing VOL right - left and CH up - down so that cursor center overlap monoscope pattern center**
15. **Press “0” key to go back to “Coarse adjustment” mode.**
16. **Press “TV/VIDEO” key to cycle through “Coarse adjustment” options**

“COARSE” modes cycle



17. **To change to “Fine Adjustment Mode” options (“FINE” DAC), press “TV/VIDEO” key on remote for at least 3 seconds, to go back to “Coarse Adjustment Mode” options press “TV/VIDEO” on remote again for 3 seconds.**
18. **In “Fine Adjustment Mode” options, press “MUTE” key on remote to switch between “cursor” mode and “data” mode.**
    - **Cursor mode: Allows cursor movement by pressing VOL right - left and CH up - down.**
    - **Data mode: Allows making adjustment by pressing VOL right - left and CH up - down.**

19. **Either "Coarse Adjustment" options or "Fine Adjustment" options, press "R-TUNE" repeatedly key on remote to cycle through different color adjustments (R, G, B, White)**
20. **In "Fine Adjustment" options, press "4" key on remote to ADD crossed sections to pattern and make effect visible between crossed sections.**
21. **To store adjustments press "7", then "ACTION" key on remote, otherwise press "POWER" then "ACTION" to exit adjustments without saving.**
22. **Once out of the "COARSE" register, "AUTO OFFSET" process begins by comparing red, green and blue color adjustment with the internal PTV convergence sensors.**
23. **For Remote functions, PRESS:**

PRESS BUTTON	TO
1(forward) or 3(back)	change viewed color
2	change pattern
4 (only FINE mode)	change crossed sections
5	overlap
* 7	save data
8	copy from
9	clear
POWER	exit
RECALL	display values
R-TUNE	cycle colors
TV/VIDEO	change mode
TV/VIDEO (3 secs)	switch convergence mode (FINE/ COARSE)

*****
When "7" is pressed and the data is saved, it will overwrite the factory default.

18.1. Coarse adjustment mode (COARS)

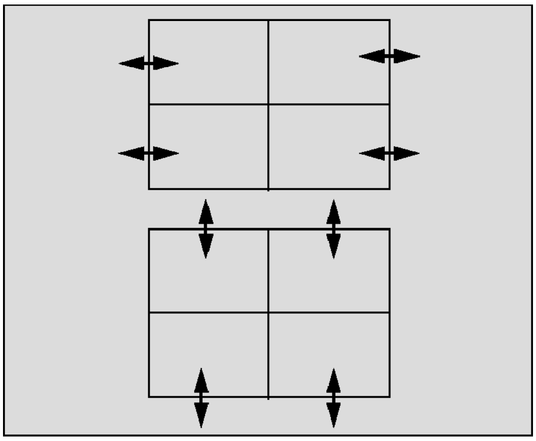
NOTE:
1080i, 480p, 480i pattern can be obtained from Panasonic's TU-DST51 set-top box DTV decoder.

NOTE:
It is strongly recommended to first read and understand the following section prior to make any adjustment. / Convergence adjustment must be performed for 480i_p (same for interlace & progressive), ZOOM 480i and 1080i.

Procedure:

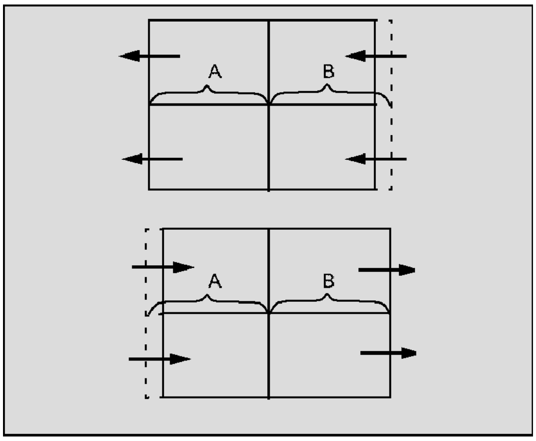
1. **Enter to "G-SIZE" mode:**
    - **Select "COARSE" DAC**
    - **Press ACTION on remote**
    - **TV/VIDEO (repeatedly)**
    - **R-TUNE (repeatedly)**
2. **Press "2" repeatedly and apply the pattern of border and cross.**
3. **Press "RECALL" key to display values**
4. **Adjust size so that the line of the border closes to the screen frame at top, bottom, left and right, by pressing CH up-down and VOL right-left**

"SIZE" mode adjustment



5. **Press "7" then "ACTION" key on remote to save changes.**
6. **Enter to linearity "G-LINEAR" mode by pressing "TV/VIDEO".**
7. **Adjust linearity by pressing VOL right-left until A=B.**

"LINEAR" mode adjustment



8. Press “7” then “ACTION” key on remote to save changes.

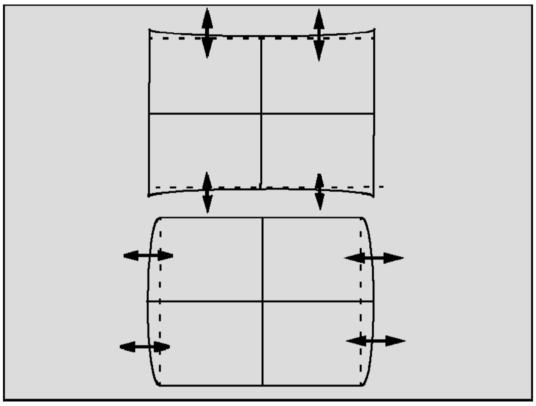
9. Enter to PIN “G-PIN” mode by pressing “TV/VIDEO”

10. Adjust V_PIN by pressing CH up-down (see figure)

11. Adjust H_PIN by pressing VOL right-left.

12. Press “7” then “ACTION” key on remote to save changes

“PIN” mode adjustment

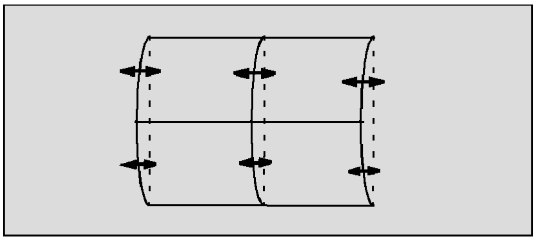


13. Press “7” then “ACTION” key on remote to save changes.

14. Adjust by pressing VOL right-left (see figure)

15. Press “7” then “ACTION” key on remote to save changes

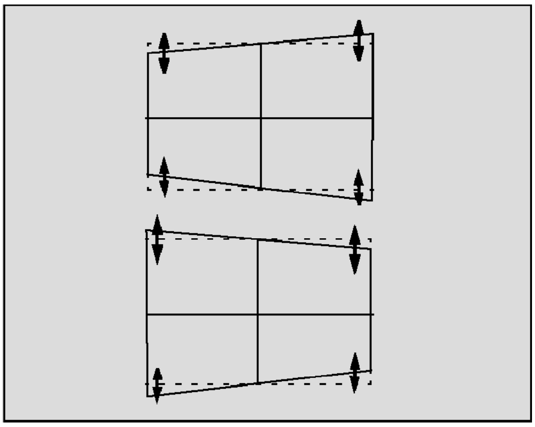
“CORNER” mode adjustment



16. Enter to KEY “G-KEY” mode by pressing TV/VIDEO.

17. Adjust by pressing CH up-down (see figure)

18. Press “7” then “ACTION” key on remote to save changes



“KEY” mode adjustment

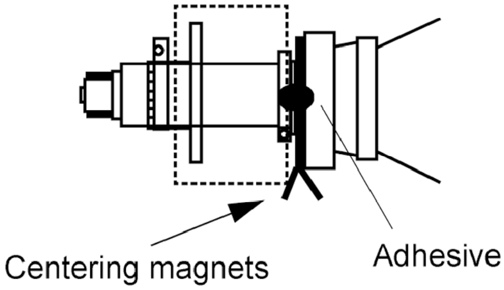
NOTE:
Confirm that pattern looks like a square and almost overlaps the screen frame, check that vertical and horizontal line center match with the marks on screen frame, if linearity is not good enough, repeat adjustments.

19. Enter to “STATIC” mode by pressing TV/VIDEO.

20. Press “1” or “3” repeatedly until green and red only are shown.

21. Adjust “R-STATIC” so that the center of red overlaps with the center of green

“STATIC” mode adjustment

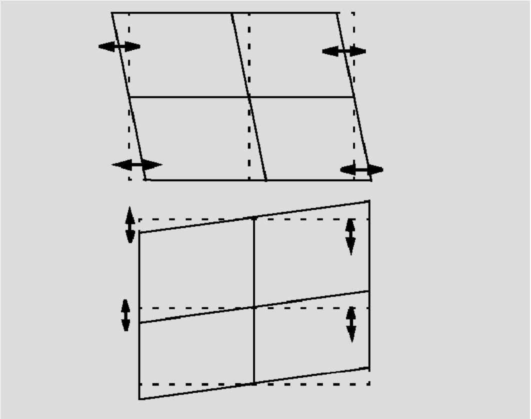


22. Enter to SKEW “R-SKEW” mode by pressing TV/VIDEO

23. Adjust “R-SKEW” so that the vertical and horizontal line of center overlaps with green (see figure)

24. Press “7” then “ACTION” key on remote to save changes.

“SKEW” mode adjustment



NOTE:
Remember always save data following each adjustment by pressing "7" key on remote, then ACTION.

25. Enter to LINEARITY "R-LINEAR" mode by pressing TV/VIDEO.

26. Adjust Horizontal linearity (see figure)

27. Enter to SIZE "R-SIZE" mode by pressing TV/VIDEO.

28. Adjust so that the line on the border closes to the screen frame at top, bottom, left and right (see figure).

29. Enter to PIN "R-PIN" mode by pressing TV/VIDEO

30. Adjust horizontally and vertically (see figure)

31. Enter to CORNER "R-CORNER" mode by pressing TV/VIDEO.

32. Adjust corners (see figure).

33. Enter to KEY "R-KEY" mode by pressing TV/VIDEO

34. Adjust KEY (see figure).

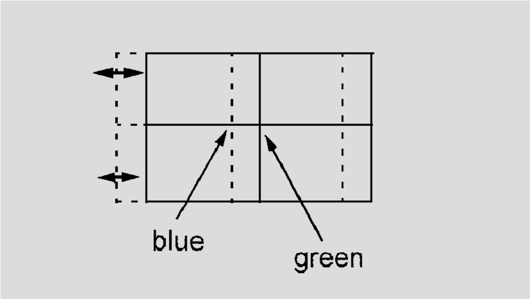
35. Display pattern of border and cross, then check that red overlaps green pattern, if it is not satisfactory, repeat from step 19.

36. Enter to STATIC "B-STATIC" mode.

37. Press "1 or 3" key repeatedly on remote until only green and blue pattern are displayed.

38. Adjust B-STATIC so that the center of blue overlaps with the center of green (see figure).

"B-STATIC" mode adjustment



39. Perform all adjustments for blue (B-SKEW, B-LINEAR, B-SIZE, B-PIN, B-CORNER, B-KEY)

40. Display border and cross pattern and confirm that blue overlaps with green pattern, if it is not satisfactory, repeat for blue.

41. Press "1 or 3" key repeatedly on remote until green, red and blue (white), confirm that red and blue overlaps with green pattern.

42. Press "7" key on remote, then ACTION to save changes.

43. Press POWER then ACTION to exit adjustments or press TV/ VIDEO for at least 3 seconds to change to Fine Adjustment Mode.

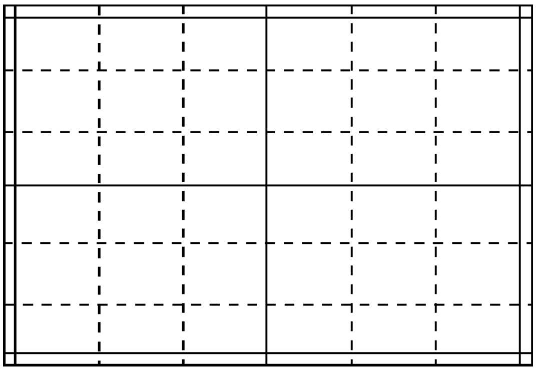
44. After exiting COARS adjustment the "AUTO OFFSET" procedure begins. The receiver performs an horizontal and vertical sweeping offset reference with the new saved data for autoconvergence alignment feature (see "autoconvergenceadjustment" for more information.

18.2. Fine adjustment mode (FINE) (convergence)

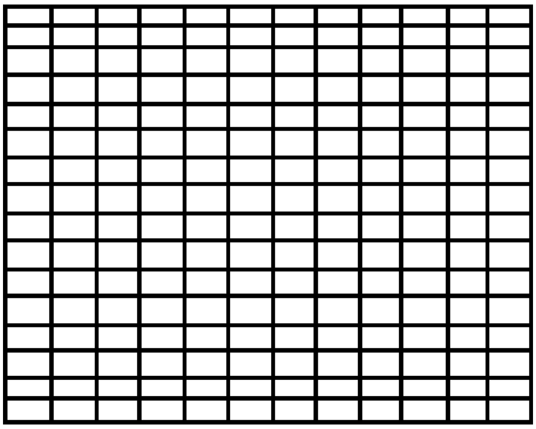
NOTE:
It is strongly recommended to first read and understand the following section prior to make any adjustment.

HELPFUL HINT:
The easiest way to adjust convergence is to start adjusting from the center of the screen to the borders in all the convergence adjustments.
Once in "FINE" convergence mode press "4" on remote control frequently to change crossed sections, this helps to check convergence more accurate in more sections of the picture. Please see the following figuresthat show the cycle, this does not have any effect on the positions of the cursor.

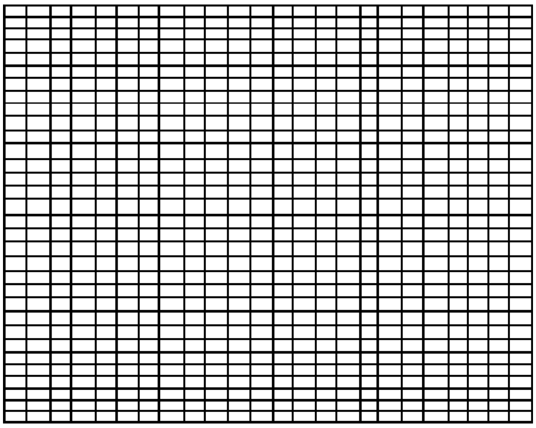
"FINE" convergence mode default Grid



“FINE” convergence mode after pressing “4” on remote



“FINE” convergence mode after pressing “4” on remote



PRESS BUTTON	TO
1(go) or 3(back)	change color view
2	change pattern
4 (only FINE mode)	change crossed sections
5	overlap
* 7	save data
8	copy from
9	clear
POWER	exit
RECALL	display values
R-TUNE	cycle colors
TV/VIDEO	change mode
TV/VIDEO (3 secs)	switch convergence mode (FINE/ COARSE)

*****
When “7” is pressed and the data is saved, it will overwrite the factory default.

In “FINE ADJUSTMENT MODE” options, press “MUTE” key on remote to switch between “cursor” mode and “data” mode.

- **Cursor mode (cursor flashing): Allows cursor movement by pressing VOL right - left and CH up - down.**
- **Data mode (cursor fixed): Allows making adjustment by pressing VOL right - left and CH up - down.**

PROCEDURE:

1. To Enter to “G-EASY” mode (for green):

- **Select “FINE” DAC**
- **Press ACTION on remote**
- **Press TV/VIDEO (repeatedly) to select mode.**
- **Press R-TUNE (repeatedly) to select color**

2. Press “2” repeatedly and apply the pattern of crosshatch.

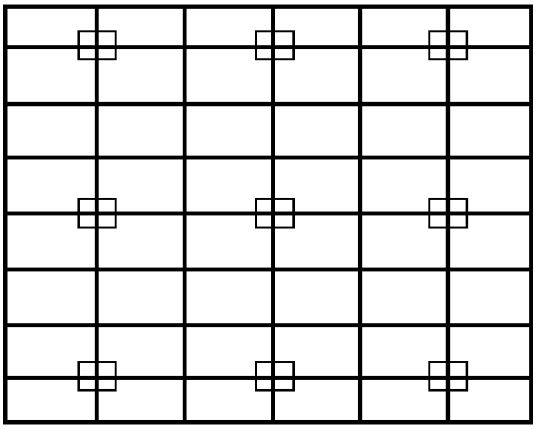
3. Press “4” frequently to change crossed sections, this helps to check convergence more accurate in more sections of the picture.

4. Press “1 or 3” repeatedly until the pattern becomes green.

5. Press RECALL to display values.

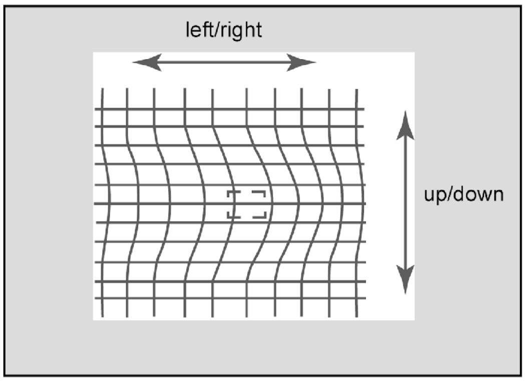
6. **In "EASY" mode, the adjustment value changes by 4 steps**
7. **"EASY" mode allows to move lines horizontally and vertically from the center of cursor**

"EASY" mode adjustment, possible locations for cursor



8. **This mode affects a wide area around the cursor than other adjustment modes, See values on screen by pressing RECALL on remote**
9. **Begin adjustment from the center to the edge of the screen.**
10. **Adjust when the cursor is not flashing by pressing CH up/down and VOL right/left on the remote control, if the cursor is flashing press MUTE on remote.**

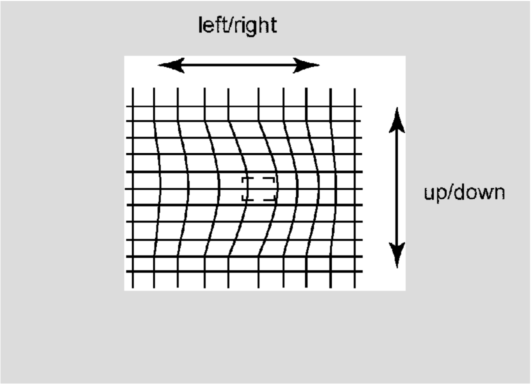
"EASY" mode adjustment



11. **To move the cursor press MUTE on the remote (cursor flashes), then move the cursor to any of the positions for "EASY" mode**
12. **This adjustment may help to make rounded lines become straight lines.**
13. **Adjust to make lines as straight as possible.**

14. Enter to POINT "G-POINT" (for green) mode by pressing TV/VIDEO.
15. "POINT" mode allows to move line horizontally and vertically from the perimeter of cursor making rounded lines become straight
16. In "POINT" mode, the adjustment data changes by 2 steps, See values on screen by pressing RECALL on remote
17. When the cursor is located in the outer area of the border the cursor starts to flash from one side to other, the location is for the non-visible area and the most outer side of screen (inside the ovals area, see figure); This applies to "LINE", "POINT" & "ORIGIN.POINT" modes.
18. Begin adjustment from the center to the edge of the screen

"POINT" & "ORIG. POINT" mode adjustment

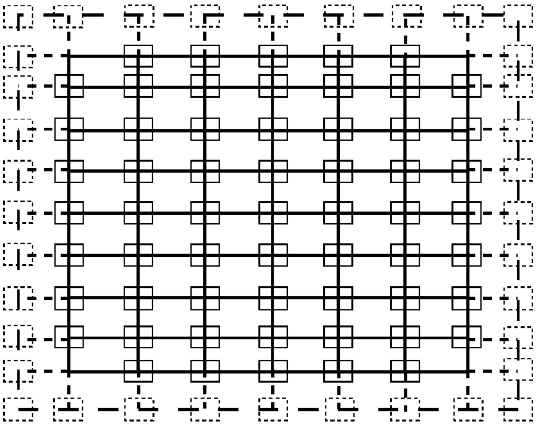


19. Adjust to make lines as much straight as possible
20. When slightly adjustment is needed, use "ORIG. POINT" mode.
21. To enter to "G-ORIG. POINT" (for green) mode press TV/VIDEO.
22. With "ORIG. POINT", the adjustment data changes by 1 step, this allows more detail in the adjustment. Display values on screen by pressing RECALL on remote
23. Confirm that green adjustment is good enough, if adjustment is not satisfactory, repeat adjustments.
24. Enter to LINE "G-LINE" mode by pressing TV/VIDEO.
25. LINE mode allows to move each single line horizontally and vertically (see figure)

26. Begin adjustment from the center to the edge of the screen (see figure)

27. Adjust to make distribute lines

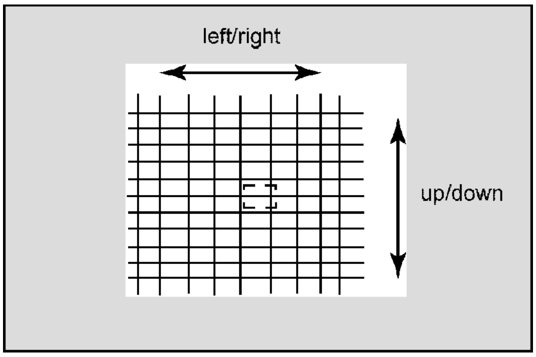
LINE, POINT, ORIG. POINT modes, possible locations for cursor



28. Then press “1 or 3” on the remote until red and green appears.

NOTE:
Since convergence adjustment will not allow to adjust every single cross section of the grid, it is very important to adjust, so that overall looks best, in “FINE” mode press “4” frequently on remote control tocycle crosshatch pattern to verify convergence.

“LINE” mode adjustment



29. Perform adjustments for red so that red overlaps green, do not move green.

30. Press “1 or 3” on the remote until yellow (red and green) and blue appears, do not move green or red.

31. Perform adjustments so that blue overlaps Yellow (red and green).

32. Press “1 or 3” key on remote to display red, green and blue (white).

33. At this point the crosshatch pattern should look white.

34. If the crosshatch pattern is not only white, repeat adjustment for that specific color (red or blue).

35. Once the crosshatch pattern looks only white, perform the adjustments for White only (“POINT”, “ORIG. POINT” & “LINE”), notice that each adjustment must be only for white (red, green,blue)

36. Adjust white for a good line distribution and make lines completely straight.

37. Press “7” key on remote, then ACTION to save changes.

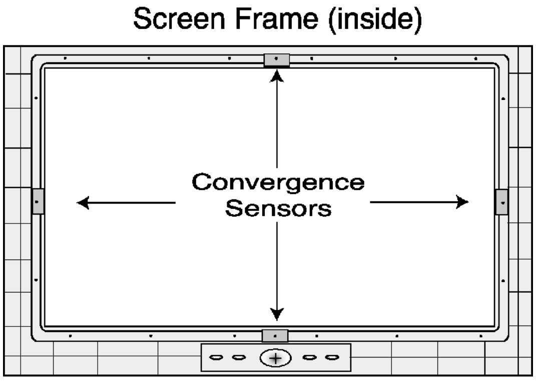
38. Press POWER then ACTION to exit convergence adjustments (DACs menu appears).

39. After exiting FINE adjustment the “AUTO OFFSET” procedure begins. The receiver performs an horizontal and vertical sweeping offset reference with the new saved data for autoconvergence alignment feature (see “autoconvergenceadjustment” for more information.

18.3. Autoconvergence adjustment

The GN1P family has a special feature that performs an autoconvergence quick adjustment with a 4 point optical reference pattern. To perform this automatic adjustment the receiver must sweep 4 line reference pattern(2 horizontal and 2 vertical)for all 3 colors (red, green and blue). The receiver capture the light sweep alignment with 4 optical sensors inside the screen frame perimeter.

Sensor Location



In Service mode:
In case that autoconvergence adjustment does not give proper convergence alignment results repeat manual convergence adjustment procedure.

Autoconvergence Troubleshoot (ERROR display)

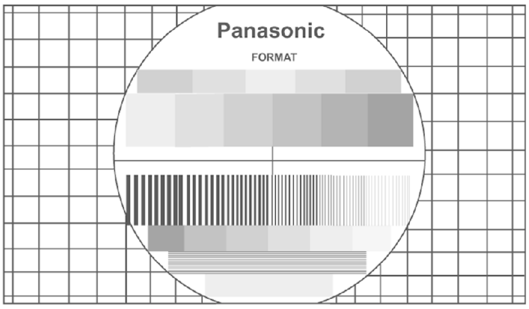
When autoconvergence feature is executed and the procedure doesn't complete accordingly by displaying an error number on screen, check the possible causes in the following order:

1. **Make sure convergence and electrical adjustments are properly set.**
2. **Check all chassis connections.**
3. **Check that Autoconvergence patterns are centered and displayed correctly.**
4. **Check that K-board is properly connected.**
5. **Check that optical sensors (screen frame) are properly connected and working. Check the following error table for possible optical sensor malfunction or bad connection. In case of malfunction, replace optical sensor (CD-board).**

Error display	Description	Error display	Description
A0	Left sensor did not detect horizontal red.	A1	Left sensor did not detect vertical red.
A8	Top sensor did not detect horizontal red.	A9	Top sensor did not detect vertical red.
B0	Bottom sensor did not detect horizontal red.	B1	Bottom sensor did not detect vertical red.
B8	Right sensor did not detect horizontal red.	B9	Right sensor did not detect vertical red.
A2	Left sensor did not detect horizontal green.	A3	Left sensor did not detect vertical green.
AA	Top sensor did not detect horizontal green.	AB	Top sensor did not detect vertical green.
B2	Bottom sensor did not detect horizontal green.	B3	Bottom sensor did not detect vertical green.
BA	Right sensor did not detect horizontal green.	BB	Right sensor did not detect vertical green.
A4	Left sensor did not detect horizontal blue.	A5	Left sensor did not detect vertical blue.
AC	Top sensor did not detect horizontal blue.	AD	Top sensor did not detect vertical blue.
B4	Bottom sensor did not detect horizontal blue.	B5	Bottom sensor did not detect vertical blue.
BC	Right sensor did not detect horizontal blue.	BD	Right sensor did not detect vertical blue.

18.4. Horizontal and vertical size check

1. **Apply a pattern that permits to check that horizontal and vertical proportion of the image is correct**
2. **Confirm that horizontal and vertical center of the picture is located in the center of the screen.**
3. **Check that the image is proportional horizontally and vertically, proportion is different on every aspect.**



18.5. Convergence alignment template

The convergence alignment template is a grid approximately the size of the viewing screen used to ensure the proper size and shape of the alignment rasters. It is 6 blocks across by 6 blocks high. Apply a convergence alignment template to the viewingscreen of the PTV. Make sure the center lines are properly aligned. If a template is not available, one can be created by following the instructions below.Create a convergence alignment template by drawing a pattern, as in the figure, in the actualdimensions on transparent film or tracing paper. Start with the Horizontal and Vertical Center Axis and work outwards until the pattern is complete. Pay attention to the actual dimensions of the pattern.

Template dimensions:

- 53”: 1173.3mm horizontal x 660mm vertical.

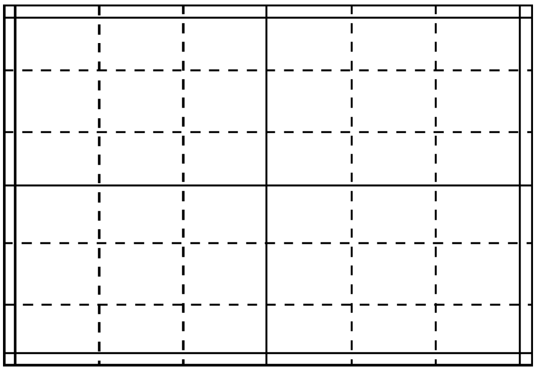
Single grid dimension:

HORIZONTAL	VERTICAL
189.22 mm	94.29 mm

NOTE:

A convergence alignment template, part number TXFQD01FSER is available through Matsushita/ Panasonic Services

Convergence template.



19. Reference of PDF links color

DESCRIPTION OF PDF LINK COLORS	
TYPE	**DESTINATION**
SCHEMATIC	
YELLOW ON IC	IC ON PCB
YELLOW ON CONNECTOR	CONNECTOR ON PCB
YELLOW ON SCHEMATIC	PCB
CYAN	WAVEFORM
GREEN ON SIDE	SCHEMATIC CONTINUED
GREEN ON CONNECTOR	CONNECTOR CONNECTION
BLUE ON IC	VOLTAGE
PCB	
BLUE ON IC	IC ON SCHEMATIC
BLUE ON CONNECTOR	CONNECTOR ON SCHEMATIC
BLUE ON PCB	SCHEMATIC
GREEN ON SIDE	PCB CONTINUED
BLOCK DIAGRAMS	
GREEN ON IC	IC ON SCHEMATIC
GREEN ON SIDE	BLOCK DIAGRAM CONTINUED

20. Conductor views

20.1. A-Board Printed Circuit (page 1 of 2)

20.2. A-Board Printed Circuit (page 2 of 2)

20.3. D-Board Printed Circuit (page 1 of 2)

20.4. D-Board Printed Circuit (page 2 of 2)

20.5. DC-Board Printed Circuit (Top & bottom view)

20.6. DG-Board Printed Circuit (bottom view)

20.7. DG-Board Printed Circuit (top view)

20.8. H-Board Printed Circuit

20.9. CD, G, K & R Printed Circuit Boards

20.10. LB-Board Printed Circuit

20.11. LG-Board Printed Circuit

20.12. LR-Board Printed Circuit

21. Block diagrams

21.1. Audio block diagram page (1 of 2)

21.2. Audio block diagram (page 2 of 2)

21.3. Video block diagram (page 1 of 2)

21.4. Video block diagram (page 2 of 2)

22. Schematic diagrams

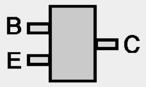
22.1. Schematic diagrams notes

Notes:

IMPORTANT SAFETY NOTICE

THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES THAT ARE IMPORTANT FOR PROTECTION FROM X-RADIATION, FIRE AND ELECTRICAL SHOCK HAZARDS. WHEN SERVICING IT IS ESSENTIAL THAT ONLY MANUFACTURERS SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS DESIGNATED WITH A ⚠ IN THE SCHEMATIC.

CHIP TRANSISTOR LEAD DESIGNATION



SCHEMATIC NOTES

1. Resistors are carbon 1/4W unless noted otherwise.
2. Capacitors are ceramic 50V unless noted otherwise.
3. Coil value notes is inductance in µH.
4. Test point indicated by ● ; Test point but no pin ○.
5. Components indicated with ⚠ are critical parts and replacement should be made with manufacture specified replacement parts only.
6. ▬ (**BOLD LINE**) indicates the route of B+ supply.
7. The schematic diagrams are current at the time of printing and are subject to change without notice.
8. Ground symbol ⏚ indicates **HOT GROUND CONNECTION**; ⏚ indicates COLD GROUND.

NOTE: All other component symbols are used for engineering design purposes.

VOLTAGE MEASUREMENTS

1. Voltage measurement:
   - AC input to the Receiver is 120V. NTSC (HD, 1125i & 525P when applicable) signal generator is connected to the antenna of the Receiver. (Color bar pattern of 100 IRE white and 7.5 IRE black.)
   - All Picture and Audio adjustments are set to Normalize.
     TV ANT/CABLE - (Set-Up Menu) in TV/ANT Mode
     Volume - Min.
     TV/Video SW - TV position
     Audio Mode - Stereo
   - Voltage readings are nominal and may vary ±10% on active devices. Some voltage reading will vary with signal strength and picture content.
   - Supply voltages are nominal.
2. Ground symbol ⏚ indicates ground lead connection of meter.
   Incorrect ground connection will result in erroneous readings.

*CAUTION: **Incorrect ground connection of the test equipment will result in erroneous readings.***

WAVEFORM MEASUREMENTS

1. ③ indicates waveform measurement. (Measurement can be taken at the best accessible location in common to the indicated point.)
2. Taken with an NTSC signal generator connected to the antenna terminal. (NTSC color bar pattern of 8 bars of EIA colors, 100 IRE white and 7.5 IRE black.)
3. Customer Controls (Picture/Audio Menu) are set to Normalize. Volume is set to "MIN".
4. All video and color waveforms are taken with a wideband scope and a probe with low capacitance (10 to 1). Shape and peak altitudes may vary depending on the type of Oscilloscope used and its settings.
5. Ground symbol ⏚ shown on waveform number indicates (Hot) ground lead connection of the Oscilloscope.

CAUTION: Incorrect ground connection of the test equipment will result in erroneous readings.

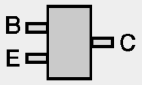
22.2. Notas de los diagramas esquemáticos

Notas

NOTA DE SEGURIDAD

LOS DIAGRAMAS ELÉCTRICOS INCLUYEN CARACTERÍSTICAS ESPECIALES MUY IMPORTANTES PARA LA PROTECCIÓN CONTRA RAYOS-X, QUEMADURAS Y DESCARGAS ELÉCTRICAS. CUANDO SE DE SERVICIO ES IMPORTANTE USAR PARA REEMPLAZO DE COMPONENTES CRITICOS, SOLO PARTES ESPECIFICADAS POR EL FABRICANTES. LOS COMPONENTES CRITICOS ESTAN SEÑALADOS EN LOS DIAGRAMAS POR EL SIMBOLO ⚠.

IDENTIFICACIÓN DE TERMINALES PARA TRANSISTORES EN *CHIP*



NOTAS DE LOS DIAGRAMAS

1. Las Resistencias son de Carbón de 1/4W, a menos que se indique otra característica.
2. Los Capacitores son de Cerámica para 50V, a menos que se indique otra característica.
3. El valor indicado de las Bobinas es la inductancia expresada en μH.
4. Los puntos de prueba en la terminal de algún componente son indicados por ● Los puntos de prueba fuera de los componentes se indican con ○.
5. Los componentes señalados con el símbolo ⚠ son considerados componentes críticos y deben ser reemplazados sólo con las partes especificadas por el fabricante.
6. ▬ (**LINEA GRUESA**) indica las líneas de alimentación de los Voltajes B+.
7. Los diagramas eléctricos están sujetos a cambio sin previo aviso.
8. El símbolo ⏚ indica que es una conexión a **Tierra Caliente** y el símbolo ⏚ indica conexión a **Tierra Fría**.

NOTA: Los demas símbolos de componentes incluidos son usados con fines de diseño.

MEDICIÓN DE VOLTAJES

1. Medición de voltaje:
   - El voltaje de entrada al Receptor es de 120V de Corriente Alterna. Un generador de patrones con formato NTSC se conecta a la entrada de la antena. (Patrón de Barras de Colores con 100 IREs para el Blanco y 7.5 IREs para el Negro.)
   - Los ajustes de los Menus Picture y Audio se normalizan.
     En el Menú Set-Up, en la opción ANTENA, se selecciona el modo de CABLE.
     El nivel de Volumen se minimiza.
     De los modos TV y Video, seleccionar el modo TV.
     Seleccionar modo Estereo del Audio.
   - Las mediciones de los voltajes son nominales y pueden variar hasta 10% en componentes en funcionamiento. Las lecturas de los voltajes pueden variar por la potencia de la señal y el contenido de la imagen.
   - Las fuentes de voltajes son nominales.
2. El símbolo ⏚ indica el tipo de tierra que se utiliza en la conexión del medidor.

PRECAUCION: SI no se utiliza la conexión a la tierra adecuada, se obtendrán mediciones equivocadas y podría dañar el equipo de medición.

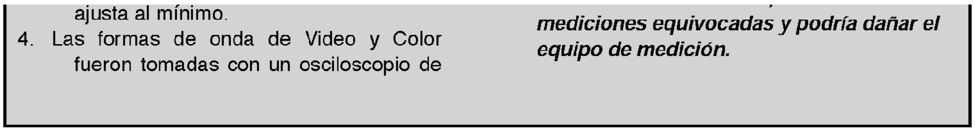
MEDICIÓN DE FORMAS DE ONDA

1. Un símbolo como ③ indica el punto para medir una señal. (La medición puede hacerse en el punto con mayor accesibilidad, siempre que sea común al indicado.)
2. Se midieron utilizando un generador con formato NTSC conectado a la terminal de la antena. (Patrón de 8 Barras de Colores EAI, formato NTSC de 100 IREs para el Blanco y 7.5 IREs para el Negro.)
3. Los ajustes de usuario de los Menus PICTURE y AUDIO se normalizaron. Posteriormente el nivel de volumen se ajusta al mínimo.

banda alta y con un punta de prueba de baja capacitancia (10 a 1). La forma y amplitud de las ondas puede variar según el tipo de osciloscopio que se utilice y sus características.

5. El símbolo de tierra ⏚ que aparece junto al número de la forma de onda, indica que se utiliza conexión a **Tierra Caliente** en el extremo negativo de la punta de prueba.

PRECAUCION: Si no se utiliza la conexión a la tierra adecuada, se obtendrán



ajusta al mínimo.

4. Las formas de onda de Video y Color fueron tomadas con un osciloscopio de

mediciones equivocadas y podría dañar el equipo de medición.

22.3. A-Board schematic 1 of 3

22.4. A-Board schematic 2 of 3

22.5. A-Board schematic 3 of 3

22.6. D-Board schematic 1 of 5

22.7. D-Board schematic 2 of 5

22.8. D-Board schematic 3 of 5

22.9. D-Board schematic 4 of 5

22.10. DC-Board schematic 1 of 2

22.11. DC-Board schematic 2 of 2

22.12. DG-Board schematic 1 of 11

22.13. DG-Board schematic 2 of 11

22.14. DG-Board schematic 3 of 11

22.15. DG-Board schematic 4 of 11

22.16. DG-Board schematic 5 of 11

22.17. DG-Board schematic 6 of 11

22.18. DG-Board schematic 7 of 11

22.19. DG-Board schematic 8 of 11

22.20. DG-Board schematic 9 of 11

22.21. DG-Board schematic 10 of 11

22.22. DG-Board schematic 11 of 11

22.23. CD,G, K, & R Boards schematics

22.24. H-Board schematic

22.25. LB-Board schematic 1 of 2

22.26. LB-Board schematic 2 of 2

22.27. LG-Board schematic 1 of 2

22.28. LG-Board schematic 2 of 2

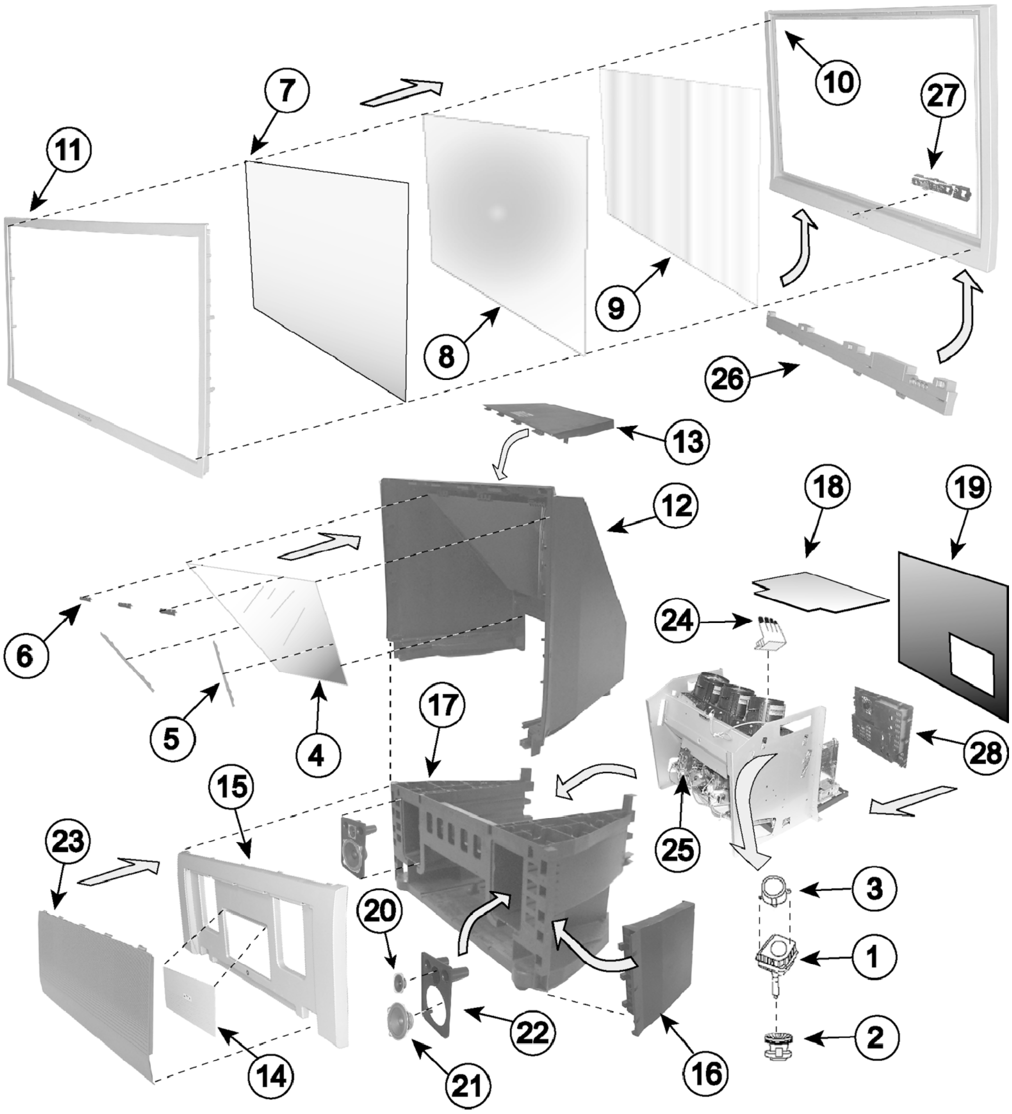
22.29. LR-Board schematic 1 of 2

22.30. LR-Board schematic 2 of 2

22.31. Voltages

22.32. Waveforms

23. Parts location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24. Parts list

24.1. Description of abbreviations guide

Important Safety Notice

Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use manufacturer's specified parts.

Abbreviation of part name and description

1. Resistor
Example :
ERD25TJ104 **C** 100KΩ, **J**, 1/4W
Type Allowance

Type	Allowance
C : Carbon	F : ± 1%
F : Fuse	G : ± 2%
M : Metal Oxide	J : ± 5%
Metal Film	K : ± 10%
S : Solid	M : ± 20%
W : Wire Wound	

2. Capacitor
Example :
ECKF1H103ZF **C** 0.01µF, **Z**, 50V
Type Allowance

Type	Allowance
C : Carbon	C : ± 0.25pF
E : Electrolytic	D : ± 0.5pF
P : Polyester	F : ± 1pF
Polypropylene	G : ± 3%
T : Tantalum	J : ± 5%
	K : ± 10%
	L : ± 15%
	M : ± 20%
	P : ± 100%, -0%
	Z : ± 80%, -20%

24.2. Parts list

Ref. No.	Part No.	Part Name & Description	Remarks
CAPACITORS			
C001	ECA1HM4R7B	CAP E 4.7UF-50V	
C003	ECJ2VC1H101J	CAP C 100PF-J-50V	
C004	ECJ2VF1E224Z	CAP C .22UF-Z-25V	
C006	EEUFC1A471B	CAP E 470UF-16V	
C007	ECA1HM4R7B	CAP E 4.7UF-50V	
C009	ECJ2VC1H101J	CAP C 100PF-J-50V	
C010	ECJ2VF1E224Z	CAP C .22UF-Z-25V	
C012	EEUFC1A471B	CAP E 470UF-10V	
C051	EEUFC1E470B	CAP E 47UF-25V	
C052	TACCX103T50V	CAP C .01UF-Z-50V	
C302	ECCR1H221JC5	CAP C 220PF-J-50V	
C303	ECQM2103KZ3	CAP P .01UF-K-200V	
C304	ECQE2104KFW	CAP P .10UF-K-200V	
C305	ECA1HM470B	CAP E 47UF-50V	
C306	ECA2EM100E	CAP E 10UF-250V	
C307	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C308	ECA1HM220B	CAP E 22UF-50V	
C309	ECA2EM100B	CAP E 10UF-250V	
C312	ECKC3D102KBN	CAP C 1000PF-K-2KV	
C313	ECKR2H102KB5	CAP C 1000PF-K-500V	
C315	ECKR1H103ZF5	CAP C .01UF-Z-50V	

Ref. No.	Part No.	Part Name & Description	Remarks
C331	ECA1HM470B	CAP E 47UF-50V	
C332	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C333	ECA1HM470B	CAP E 47UF-50V	
C334	ECA2EM470B	CAP E 47UF-250V	
C335	ECCR1H221JC5	CAP C 220PF-J-50V	
C336	ECA1HM470B	CAP E 47UF-50V	
C337	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C339	ECQE2104KFW	CAP P .10UF-K-200V	
C340	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C341	ECA2EM100B	CAP E 10UF-250V	
C345	ECKC3D102KBN	CAP C 1000PF-K-2KV	
C346	ECKR2H102KB5	CAP C 1000PF-K-500V	
C362	ECCR1H221JC5	CAP C 220PF-J-50V	
C364	ECQE2104KFW	CAP P .10UF-K-200V	
C365	ECA2EM100B	CAP E 10UF-250V	
C366	ECA1HM470B	CAP E 47UF-50V	
C367	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C368	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C372	ECKC3D102KBN	CAP C 1000PF-K-2KV	
C373	ECKR2H102KB5	CAP C 1000PF-K-500V	
C374	ECA1CM101B	CAP E 100UF-16V	
C405	ECA1EHG102E	CAP E 1 000UF-25V	
C406	ECA1EHG102E	CAP E 1 000UF-25V	
C407	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C408	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C411	ECJ2VB1H822K	CAP C .0082UF-K-50V	
C412	ECQB1224KF3	CAP P .22UF-K-100V	
C413	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C414	ECJ2VB1H272K	CAP C .0027UF-K-50V	
C417	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C418	ECJ2VF1H223Z	CAP C .022UF-Z-50V	
C421	ECEA1CN220UB	CAP E 22UF-16V	
C458	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C461	ECA1HHG221B	CAP E 220UF-50V	
C501	ECA1EM101B	CAP E 100UF-25V	
C502	ECQV1H105JL3	CAP P 1.0UF-J-50V	
C503	ECKR2H102KB5	CAP C 1000PF-K-500V	
C509	ECWF2474JSR	CAP P .47UF-J-200V	
C510	ECJ2VC1H221J	CAP C 220PF-J-50V	
C511	ECWH20222JVY	CAP P 2200PF-J-2KV	⚠
C512	ECWH20202JVY	CAP P 2000PF-J-2KV	⚠
C513	ECQF4103JZH	CAP P .01UF-J-400V	⚠
C514	ECWH20222JVY	CAP P 2200PF-J-2KV	⚠
C518	ECKW3D221JBP	CAP C 220PF-J-2KVDC	⚠
C519	ECKW3D221JBP	CAP C 220PF-J-2KVDC	⚠
C520	ECQB1H103JF3	CAP P .01UF-J-50V	⚠
C524	ECQB1224JF3	CAP P .22UF-J-100V	
C525	ECEA1HN220UB	CAP E 22UF-50V	
C526	ECA2EM101E	CAP E 100UF-250V	
C527	ECKR2H102KB5	CAP C 1000PF-K-500V	
C528	ECA1HM470B	CAP E 47UF-50V	⚠

Ref. No.	Part No.	Part Name & Description	Remarks
C531	ECA160V33UE	CAP E 33UF-160V	
C533	ECKR2H101KB5	CAP C 100UF-K-500V	
C535	ECA1EM471E	CAP E 470UF-25V	
C601	EEUFC1C331B	CAP E 330UF-16V	
C602	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C653	ECA1HM010E	CAP E 1UF-50V	
C654	ECA1HM010E	CAP E 1UF-50V	
C701	ECA1CM101B	CAP E 100UF-16V	
C702	ECKW3D271KBP	CAP C 270PF-K-2KV	
C703	ECQM2104KZW	CAP P .1UF-K-200V	
C704	ECKR2H391KB5	CAP C 390PF-K-500V	
C707	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C708	ECQE1685KFB	CAP P 6.8UF-K-100V	
C801	ECQU2A474MLA	CAP. P. 47UF-M-250VAC	⚠
C802	ECQU2A474MLA	CAP. P. 47UF-M-250VAC	⚠
C803	ECKCNA222ME7	CAP C 2200PF-M-125V	⚠
C804	ECKCNA222ME7	CAP C 2200PF-M-125V	⚠
C805	ECKW2H472PU7	CAP C 4700PF-P-500V	⚠
C806	ECKW2H472PU7	CAP C 4700PF-P-500V	⚠
C807	ECKW2H472PU7	CAP C 4700PF-P-500V	⚠
C808	ECA1EM101B	CAP E 100UF-25V	
C809	ECJ2VB1E223K	CAP C .022UF-K-25V	
C810	EETED2D102C	CAP E 1000PF-200V	⚠
C812	ECA1EHG471B	CAP E 470UF-25V	
C814	ECKW3D102KBP	CAP C 1000PF-K-2KV	
C815	ECQB1H152JF3	CAP P 1500PF-J-50V	
C817	ECKW3D102KBP	CAP C 1000PF-K-2KV	
C819	ECQB1H102JF3	CAP P 1000PF-J-50V	
C820	ECQV1H334JL3	CAP P .33UF-J-50V	
C821	ECQB1H272KF3	CAP P 2700PF-K-50V	
C822	ECA1HM220B	CAP E 22UF-50V	
C823	ECJ2VC1H151J	CAP C 150PF-J-50V	
C824	EEUFC1V151B	CAP E 150UF-35V	
C825	ECKCNA102MBB	CAP C .001UF-M-125V	⚠
C826	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C830	EETHC2C471B	CAP E 470PF-160V	⚠
C831	ECKW3D821KBP	CAP C 820PF-K-2KV	
C832	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C834	EEUFC1V222E	CAP E 2200UF-35V	
C836	ECKR3A331KBP	CAP C 330PF-K-1KVDC	
C837	ECA1EM472E	CAP E 4700UF-25V	
C839	ECKR3A331KBP	CAP C 330PF-K-1KVDC	
C841	ECA1EM472E	CAP E 4700UF-25V	
C842	ECKR3A331KBP	CAP C 330PF-K-1KVDC	
C843	ECA1VM222E	CAP E 2200UF-35V	
C844	ECKR3A331KBP	CAP C 330PF-K-1KVDC	
C845	ECA1VM222E	CAP E 2200UF-35V	
C846	ECKR3A331KBP	CAP C 330PF-K-1KVDC	
C848	ECA1CM101B	CAP E 100UF-16V	
C849	ECKR1H223ZF5	CAP C .022UF-Z-50V	
C851	ECQV1H104JL3	CAP P .10UF-J-50V	

Ref. No.	Part No.	Part Name & Description	Remarks
C852	ECA1EM101B	CAP E 100UF-25V	
C853	ECJ2YF1E474Z	CAP C .47UF-Z-25V	
C854	ECA1CM101B	CAP E 100UF-16V	
C855	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C856	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C860	ECJ2VB1H103K	CAP C .01UF-K-50V	
C861	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C862	ECJ2VB1H103K	CAP C .01UF-K-50V	
C863	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C864	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C865	ECA1CM221B	CAP E 10UF-16V	
C866	ECA0JM221B	CAP E 220UF-6.3V	
C867	ECA1CM221B	CAP E 10UF-16V	
C868	EEUFC1C471B	CAP E 470UF-16V	
C869	EEUFC1A471B	CAP E 470UF-10V	
C870	EEUFC1A471B	CAP E 470UF-10V	
C874	ECA1VM221B	CAP E 220UF-35V	
C875	ECA1VM221B	CAP E 220UF-35V	
C876	ECA1VM221B	CAP E 220UF-35V	
C877	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C878	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C879	ECA0JM221B	CAP E 220UF-6.3V	
C880	ECA0JM221B	CAP E 220UF-6.3V	
C885	EEUFC1A471B	CAP E 470UF-10V	
C886	EEUFC1A471B	CAP E 470UF-10V	
C889	ECA1VM221B	CAP E 220UF-35V	
C890	ECA1VM221B	CAP E 220UF-35V	
C902	ECQM2103KZ3	CAP P .01UF-K-200V	
C903	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C904	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C906	ECQM2103KZ3	CAP P .01UF-K-200V	
C907	ECA2CM100E	CAP E 10UF-160V	
C908	ECA1CM101B	CAP E 100UF-16V	
C909	ECA1CM101B	CAP E 100UF-16V	
C910	ECA2CM100E	CAP E 10UF-160V	
C911	ECQE2104KFW	CAP P .10UF-K-200V	
C912	ECA1HM220B	CAP E 22UF-50V	
C913	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C916	ECQE2104KFW	CAP P .10UF-K-200V	
C939	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C940	ECQM2103KZ3	CAP P .01UF-K-200V	
C941	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C942	ECQM2103KZ3	CAP P .01UF-K-200V	
C943	ECA2CM100E	CAP E 10UF-160V	
C944	ECA1CM101B	CAP E 100UF-16V	
C945	ECA1CM101B	CAP E 100UF-16V	
C947	ECA2CM100E	CAP E 10UF-160V	
C948	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C949	ECQE2104KFW	CAP P .10UF-K-200V	
C962	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C963	ECQM2103KZ3	CAP P .01UF-K-200V	
C964	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C965	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C966	ECQM2103KZ3	CAP P .01UF-K-200V	

Ref. No.	Part No.	Part Name & Description	Remarks
C967	ECA2CM100E	CAP E 10UF-160V	
C968	ECA1CM101B	CAP E 100UF-16V	
C969	ECA1CM101B	CAP E 100UF-16V	
C970	ECA2CM100E	CAP E 10UF-160V	
C971	ECQE2104KFW	CAP P .10UF-K-200V	
C972	ECA1HM220B	CAP E 22UF-50V	
C1303	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C1304	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C1305	ECJ2VB1C104K	CAP C .1UF-K-16V	
C1306	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C1307	ECA1CM101B	CAP E 100UF-16V	
C1502	ECQE6104KFB	CAP P 100UF-K-100V	
C1503	ECQE6104KFB	CAP P 100UF-K-100V	
C1504	ECJ2FB1H104K	CAP C .1UF-K-50V	
C1505	ECA1CM101B	CAP E 100UF-16V	
C1506	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C1508	ECA1CM101B	CAP E 100UF-16V	
C1509	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C1510	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C1511	ECJ2VC1H471J	CAP C 470PF-J-50V	
C1513	ECEA1EN101UB	CAP E 100UF-25V	
C1514	ECA1CM101B	CAP E 100UF-16V	
C2201	ECJ2VB1C104K	CAP C .1UF-K-16V	
C2202	ECA1HM100B	CAP E 10UF-50V	
C2203	ECA1HMR47B	CAP E .47UF-50V	
C2204	ECQB1H473JF3	CAP P .047UF-J-50V	
C2205	ECSF1CE335VB	CAP E 33MF-16V	
C2206	ECQB1H223JF3	CAP P .022UF-J-50V	
C2207	ECA1HM010B	CAP E 1UF-50V	
C2208	ECSF1CE106VB	CAP E 10UF-16V	
C2209	ECA1HM4R7B	CAP E 4.7UF-50V	
C2210	ECA1HM2R2B	CAP E 2.2UF-50V	
C2211	ECJ2VB1C104K	CAP C .1UF-K-16V	
C2212	ECJ2VB1C104K	CAP C .1UF-K-16V	
C2214	ECA1CM101B	CAP E 100UF-16V	
C2215	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C2216	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C2303	ECA50YT1R5KB	CAP E 1.5UF-50V	
C2306	ECA50YT1R5KB	CAP E 2.2UF-50V	
C2310	ECQB1H224JF3	CAP P .22UF-J-50V	
C2314	F1J1C225A083	CAP C 2.2UF-Z-16V	
C2317	ECJ3VB1H104K	CAP C .1UF-K-50V	
C2319	ECJ2VB1H333K	CAP C .033UF-K-50V	
C2322	ECJ2VB1H561K	CAP C 560PF-K-50V	
C2323	ECQB1H224JF3	CAP P .22UF-J-50V	
C2327	ECJ2VB1H471K	CAP C 470PF-K-50V	
C2329	ECJ2VC1H270J	CAP C 27PF-J-50V	
C2331	ECJ2VB1H471K	CAP C 470PF-K-50V	
C2334	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2335	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2337	ECJ2VB1H331K	CAP C 330PF-K-50V	
C2338	ECJ2VB1H682K	CAP C .0068UF-K-50V	
C2340	ECJ3VB1H104K	CAP C .1UF-K-50V	
C2342	ECJ2VB1H331K	CAP C 330PF-K-50V	

Ref. No.	Part No.	Part Name & Description	Remarks
C2344	ECJ3VB1H104K	CAP C .1UF-K-50V	
C2346	ECJ2VB1H471K	CAP C 470PF-K-50V	
C2348	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2349	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2352	ECJ2VB1H682K	CAP C .0068UF-K-50V	
C2353	ECJ2VB1H471K	CAP C 470PF-K-50V	
C2356	ECJ2VB1H333K	CAP C .033UF-K-50V	
C2359	ECJ2VB1H561K	CAP C 560PF-K-50V	
C2361	ECJ3VB1H104K	CAP C .1UF-K-50V	
C2363	ECJ3VB1H104K	CAP C .1UF-K-50V	
C2365	EEUFC1E222E	CAP E 2200UF-25V	
C2368	EEUFC1E222E	CAP E 2200UF-25V	
C2369	ECEA1CN100UB	CAP E 10UF-16V	
C2370	ECEA1CN100UB	CAP E 10UF-16V	
C2371	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C2372	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C2373	ECA1HM100B	CAP E 10UF-50V	
C2374	ECA1EM101B	CAP E 100UF-25V	
C2375	ECA1HM100B	CAP E 10UF-50V	
C2376	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2377	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2378	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2379	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2381	ECJ2VB1H561K	CAP C 560PF-K-50V	
C2382	ECJ2VB1H561K	CAP C 560PF-K-50V	
C2394	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C2398	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C2403	ECJ2VB1H561K	CAP C 560PF-K-50V	
C2404	ECJ2VB1H561K	CAP C 560PF-K-50V	
C2421	ECJ2VB1H561K	CAP C 560PF-K-50V	
C2426	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C2434	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C2451	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2452	ECJ2VB1H332K	CAP C .0033UF-K-50V	
C2453	ECJ2VB1H333K	CAP C .033UF-K-50V	
C2454	ECJ2VB1H222K	CAP C .0022UF-K-50V	
C2455	ECJ2VB1C224K	CAP C .22UF-K-16V	
C2456	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2457	ECJ2VB1C104K	CAP C .1UF-K-16V	
C2458	ECA1HM4R7B	CAP E 4.7UF-50V	
C2459	ECA1HM4R7B	CAP E 4.7UF-50V	
C2460	ECJ2VB1H103K	CAP C .01UF-K-50V	
C2461	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2462	ECJ2VB1H332K	CAP C .0033UF-K-50V	
C2463	ECJ2VB1H333K	CAP C .033UF-K-50V	
C2464	ECJ2VB1H222K	CAP C .0022UF-K-50V	
C2465	ECJ2VB1C224K	CAP C .22UF-K-16V	
C2466	ECJ2VB1C104K	CAP C .1UF-K-16V	
C2467	ECA1HM4R7B	CAP E 4.7UF-50V	
C2468	ECA1HM4R7B	CAP E 4.7UF-50V	
C2469	ECA1HM4R7B	CAP E 4.7UF-50V	
C2470	ECA1CM101B	CAP E 100UF-16V	
C3201	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3202	ECJ2VB1H152K	CAP C .0015UF-K-50V	

Ref. No.	Part No.	Part Name & Description	Remarks
C3203	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3331	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3332	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3333	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3334	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3335	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3336	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3337	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3338	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3339	ECJ2VB1H103K	CAP C .01UF-K-50V	
C3340	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C3341	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C3342	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3343	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3344	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3345	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3346	ECJ2VB1H103K	CAP C .01UF-K-50V	
C3347	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C3348	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C3349	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3350	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3351	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3352	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3353	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C3354	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3355	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3357	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3358	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3359	ECA1EM471E	CAP E 470UF-25V	
C3360	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3361	ECJ2VB1H152K	CAP C .0015UF-K-50V	
C3362	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3363	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3364	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C3365	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C3366	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C3367	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C3368	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C3369	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C7001	ECJ3YF1E225Z	CAP C 22MF-Z-25V	
C7002	ECJ3YF1E225Z	CAP C 22MF-Z-25V	
C7004	ECA1EHG221B	CAP E 220UF-25V	
C7006	ECA1EHG221B	CAP E 220UF-25V	
C7015	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C7016	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C7017	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C7018	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C7032	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C7033	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C7034	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C7035	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C7050	ECA1VM470B	CAP E 47UF-35V	
C7060	ECA1CHG101B	CAP E 100UF-16V	
C7061	ECA1CHG101B	CAP E 100UF-16V	

Ref. No.	Part No.	Part Name & Description	Remarks
C7065	**ECA1VM470B**	**CAP E 47UF-35V**	
DIODES			
D001	**MAZ31500ML**	**DIODE ZENER**	
D002	**MAZ31500ML**	**DIODE ZENER**	
D003	**MAZ31500ML**	**DIODE ZENER**	
D004	**MAZ31500ML**	**DIODE ZENER**	
D081	**LN21RCPHL**	**DIODE**	
D082	**MAZ40560MF**	**DIODE ZENER**	
D083	**MAZ40560MF**	**DIODE ZENER**	
D301	**MA2C16700E**	**DIODE**	
D302	**MAZ40680LF**	**DIODE ZENER**	
D303	**TVSRM1V1**	**DIODE**	
D304	**B0HALP000002**	**DIODE FAST RECOVERY**	
D306	**MA2C165001VT**	**DIODE**	
D307	**MA2C165001VT**	**DIODE**	
D312	**MA2C18800E**	**DIODE**	
D313	**MA2C18800E**	**DIODE**	
D314	**MA2C18800E**	**DIODE**	
D315	**MA2C18800E**	**DIODE**	
D331	**B0HALP000002**	**DIODE FAST RECOVERY**	
D331	**MA2C165001VT**	**DIODE**	
D334	**MA2C165001VT**	**DIODE**	
D335	**MA2C165001VT**	**DIODE**	
D339	**MA2C18800E**	**DIODE**	
D340	**MA2C18800E**	**DIODE**	
D341	**MA2C18800E**	**DIODE**	
D342	**MA2C18800E**	**DIODE**	
D361	**B0HALP000002**	**DIODE FAST RECOVERY**	
D361	**B0HALP000002**	**DIODE**	
D363	**MA2C165001VT**	**DIODE**	
D364	**MA2C165001VT**	**DIODE**	
D369	**MA2C18800E**	**DIODE**	
D370	**MA2C18800E**	**DIODE**	
D371	**MA2C18800E**	**DIODE**	
D372	**MA2C18800E**	**DIODE**	
D407	**MA3X152K0L**	**DIODE**	
D409	**MA3X152K0L**	**DIODE**	
D410	**MA3X152K0L**	**DIODE**	
D411	**MA3X152K0L**	**DIODE**	
D451	**B0EAKC000003**	**DIODE RECTIFIER**	
D452	**B0EAKC000003**	**DIODE RECTIFIER**	
D453	**B0EAKC000003**	**DIODE RECTIFIER**	
D454	**B0EAKC000003**	**DIODE RECTIFIER**	
D455	**B0EAKC000003**	**DIODE RECTIFIER**	
D456	**B0EAKC000003**	**DIODE RECTIFIER**	
D458	**B0EAKL000008**	**DIODE RECTIFIER**	
D465	**MAZ40390MF**	**DIODE ZENER**	
D466	**MA3X152K0L**	**DIODE**	
D501	**B0HALP000002**	**DIODE FAST RECOVERY**	
D502	**MAZ31500ML**	**DIODE ZENER**	
D503	**B0HBRV000001**	**DIODE**	
D504	**MAZ42700MF**	**DIODE ZENER**	
D509	**MA3X152K0L**	**DIODE**	
D510	**MAZ30820LL**	**DIODE ZENER**	

Ref. No.	Part No.	Part Name & Description	Remarks
D511	**B0HAHP000014**	**DIODE**	
D512	**B0HALP000002**	**DIODE FAST RECOVERY**	⚠
D513	**MA2C165001VT**	**DIODE**	
D0514	**MAZ30300LL**	**DIODE ZENER**	
D515	**B0HALP000002**	**DIODE FAST RECOVERY**	
D516	**EU2YXV0**	**DIODE**	
D519	**AU02ZV0**	**DIODE**	
D520	**MA3X152K0L**	**DIODE**	
D634	**MA2C165001VT**	**DIODE**	
D650	**MAZ41100MF**	**DIODE ZENER**	
D651	**MAZ41100MF**	**DIODE ZENER**	
D656	**MAZ41100MF**	**DIODE ZENER**	
D657	**MAZ41100MF**	**DIODE ZENER**	
D659	**MAZ41100MF**	**DIODE ZENER**	
D660	**MAZ41100MF**	**DIODE ZENER**	
D662	**MAZ41100MF**	**DIODE ZENER**	
D663	**MAZ41100MF**	**DIODE ZENER**	
D702	**B0HALP000002**	**DIODE FAST RECOVERY**	
D801	**D3SB80-4101**	**DIODE**	⚠
D802	**D4EAB3610002**	**DIODE**	⚠
D804	**B0EBKM000016**	**DIODE**	
D815	**MA2C165001VT**	**DIODE**	
D816	**MA2C70000F**	**DIODE**	
D817	**AU01ZV0**	**DIODE**	
D818	**MAZ32700LL**	**DIODE ZENER**	
D819	**B0BA01000046**	**DIODE ZENER**	⚠
D822	**B0AAGM000006**	**DIODE SWITCHING**	
D825	**SF5L60U-4115**	**GERMANIUM DIODE**	⚠
D827	**SF5LC30-4115**	**GERMANIUM DIODE**	
D828	**SF5LC30-4115**	**GERMANIUM DIODE**	
D829	**SF5LC30-4115**	**GERMANIUM DIODE**	
D830	**B0HAPM000012**	**DIODE**	
D831	**B0HAPM000012**	**DIODE**	
D835	**B0JAME000052**	**DIODE**	
D837	**MA3X152K0L**	**DIODE**	
D870	**MA2C165001VT**	**DIODE**	
D872	**MA2062-BTP**	**DIODE**	
D873	**MAZ31500ML**	**DIODE ZENER**	
D874	**MA2120-ATP**	**DIODE**	
D875	**MA2062-BTP**	**DIODE**	
D880	**B0JCME000025**	**DIODE**	
D881	**B0JCME000025**	**DIODE**	
D882	**B0JCME000025**	**DIODE**	
D884	**MA2062-BTP**	**DIODE**	
D885	**MA2062-BTP**	**DIODE**	
D886	**MA2C165001VT**	**DIODE**	
D887	**B0JCME000025**	**DIODE**	
D888	**B0JCME000025**	**DIODE**	
D891	**MAZ30330LL**	**DIODE ZENER**	
D902	**MA2C18800E**	**DIODE**	
D933	**MA2C18800E**	**DIODE**	
D953	**B0ZAZ0000047**	**DIODE**	

Ref. No.	Part No.	Part Name & Description	Remarks
D962	MA2C18800E	DIODE	
D973	B0ZAZ0000047	DIODE	
D983	B0ZAZ0000047	DIODE	
D1502	B0HACW000001	DIODE	
D1503	MAZ30300LL	DIODE ZENER	⚠
D1504	B0HACW000001	DIODE	
D1505	MA2C0290BF	DIODE	
D1506	MAZ30510ML	DIODE	⚠
D1507	MAZ30300LL	DIODE ZENER	
D1510	MAZ30300LL	DIODE ZENER	
D1599	MA3X152K0L	DIODE	
D2302	MA3X152K0L	DIODE	
D2306	MA3X152K0L	DIODE	
D2307	MA3X152K0L	DIODE	
D2330	MA3X152K0L	DIODE	
D2331	MA3X152K0L	DIODE	
D2334	MA2C165001VT	DIODE	
D3301	MAZ31100ML	DIODE ZENER	
D3302	MAZ31100ML	DIODE ZENER	
D3304	MAZ31100ML	DIODE ZENER	
D3306	MAZ31100ML	DIODE ZENER	
D3307	MAZ31100ML	DIODE ZENER	
D3308	MAZ31100ML	DIODE ZENER	
D3309	MAZ31100ML	DIODE ZENER	
D3310	MAZ31100ML	DIODE ZENER	
D3312	MAZ31100ML	DIODE ZENER	
D3314	MAZ31100ML	DIODE ZENER	
D3316	MAZ31100ML	DIODE ZENER	
D3317	MAZ31100ML	DIODE ZENER	
D3318	MAZ31100ML	DIODE ZENER	
D3319	MAZ31100ML	DIODE ZENER	
D3320	MAZ31100ML	DIODE ZENER	
D3321	MAZ31100ML	DIODE ZENER	
D3322	MAZ31100ML	DIODE ZENER	
D3323	MAZ31100ML	DIODE ZENER	
D3324	MAZ31100ML	DIODE ZENER	
D3325	MAZ31100ML	DIODE ZENER	
D3326	MAZ31100ML	DIODE ZENER	
D3328	MAZ31100ML	DIODE ZENER	
D3329	MAZ31100ML	DIODE ZENER	
D3330	MAZ31100ML	DIODE ZENER	
D3332	CVS20A120MTA	DIODE	
D3334	CVS20A120MTA	DIODE	
D3335	MAZ31100ML	DIODE ZENER	
D3336	MAZ31100ML	DIODE ZENER	
D3339	MAZ31100ML	DIODE ZENER	
D3340	MAZ31100ML	DIODE ZENER	
D7060	MA3X152K0L	DIODE	
		FUSES	
F801	K5D632AD0002	FUSE 6.3A/125V	⚠
		INTEGRATED CIRCUITS	
IC451	C1AA00000521	VERTICAL OUTPUT	
IC701	C0BBBA000043	EW, HHS ADJ. OP-AMP	

Ref. No.	Part No.	Part Name & Description	Remarks
IC801	AN8029	POWER SUPPLY	⚠
IC802	C0EAS0000025	MAIN REGULATOR	⚠
IC805	AN78M12LB	12V REGULATOR	
IC811	0N3171RLF	OPTO COUPLER	⚠
IC872	C0DACMG00001	9V REGULATOR	
IC874	SI-8050J	5V REGULATOR	
IC875	C0DACMG00001	3.3V REGULATOR	
IC876	C0DACMG00001	2.5V REGULATOR	
IC877	C0DACMG00001	1.8V REGULATOR	
IC880	AN78M12LB	12V REGULATOR	
IC1302	TVR2AJ180S	MAIN EEPROM	
IC1303	TVR2AJ199S	CONVERGENCE EEPROM	
IC1501	C0ABBA000073	EHT ADJ. OP-AMP	
IC2201	AN5849S-E1V	MTS AUDIO	
IC2301	C1AA00000645	AUDIO AMPLIFIER	
IC2303	C0ABBA000073	VAO OP-AMP	
IC2401	NJW1164MPTE1	BBE VIVA PROCESSOR	
IC7001	C5AA00000196	CONVERGENCE AMPLIFIER	
IC7002	C5AA00000196	CONVERGENCE AMPLIFIER	
COILS			
L001	ELELN330JA	COIL 33UH	
L002	ELELN330JA	COIL 33UH	
L301	ELEBD101KA	COIL 100UH	
L302	ELESN100JA	COIL PEAKING 10UH	
L303	ELESN6R8JA	COIL PEAKING 6.8UH	
L304	ELESN4R7JA	RADIAL INDUCTOR	
L307	ELEBD101KA	COIL 100UH	
L331	ELESN100JA	COIL PEAKING 10UH	
L332	ELESN6R8JA	COIL PEAKING 6.8UH	
L333	G0C560KA0021	COIL PEAKING 56UH	
L334	ELESN4R7KA	COIL PEAKING 4.7UH	
L335	ELEBD101KA	COIL 100UH	
L337	G0C560KA0021	COIL PEAKING 56UH	
L341	ELEBD101KA	COIL 100UH	
L361	ELEBD101KA	COIL 100UH	
L362	ELESN100JA	COIL PEAKING 10UH	
L363	ELESN150JA	COIL PEAKING 15UH	
L364	ELESN4R7JA	RADIAL INDUCTOR	
L366	ELEBD101KA	COIL 100UH	
L500	TALL08TR82MA	COIL	
L501	EXCELSA35T	FERRITE BEAD	
L510	EXCELDR25V	FERRITE BEAD	
L511	EXCELDR25V	FERRITE BEAD	
L515	EXCELDR25V	FERRITE BEAD	
L516	EXCELDR25V	FERRITE BEAD	
L555	ELH5L718	COIL	
L701	ELESN100KA	COIL PEAKING 10UH	
L702	EXCELSA35T	FERRITE BEAD	
L703	ELC18B152L	FILTER	
L704	ELC18B151G	FILTER	
L805	EXCELDR25V	FERRITE BEAD	
L806	EXCELDR25V	FERRITE BEAD	
L808	EXCELDR35V	FERRITE BEAD	

Ref. No.	Part No.	Part Name & Description	Remarks
L810	EXCELDR25V	FERRITE BEAD	
L811	EXCELDR25V	FERRITE BEAD	
L815	EXCELSA39E	EMI BEAD CORE	
L816	EXCELSA39E	EMI BEAD CORE	
L817	TALL08T680KA	COIL	
L818	TALL08T680KA	COIL	
L819	EXCELDR35V	FERRITE BEAD	
L820	EXCELDR35V	FERRITE BEAD	
L821	EXCELDR35V	FERRITE BEAD	
L825	TALL08T330KA	COIL	
L826	TALL08T330KA	COIL	
L827	TALL08T330KA	COIL	
L880	TALL08T220KA	COIL	
L881	TALL08T221KA	COIL	
L882	TALL08T220KA	COIL	
L883	G0ZZ00001909	INT CKT	
L884	TALFP15B151K	LINE FILTER	
L885	G0ZZ00001909	INT CKT	
L886	G0A101E00003	COIL	
L887	G0A101E00003	COIL	
L888	G0A470F00004	COIL	
L889	TALL08T221KA	COIL	
L890	TALL08T221KA	COIL	
L892	G0ZZ00001909	INT CKT	
L893	G0ZZ00001909	INT CKT	
L894	G0A101E00003	COIL	
L895	G0A101E00003	COIL	
L901	EXCELSA35T	FERRITE BEAD	
L902	EXCELSA35T	FERRITE BEAD	
L903	EXCELSA35T	FERRITE BEAD	
L933	EXCELSA35T	FERRITE BEAD	
L934	EXCELSA35T	FERRITE BEAD	
L935	EXCELSA35T	FERRITE BEAD	
L961	EXCELSA35T	FERRITE BEAD	
L962	EXCELSA35T	FERRITE BEAD	
L963	EXCELSA35T	FERRITE BEAD	
L1301	EXCELSA35T	FERRITE BEAD	
L1302	EXCELSA39V	EMI BEAD CORE	
L1303	EXCELSA39V	EMI BEAD CORE	
L1304	EXCELSA39V	EMI BEAD CORE	
L1305	EXCELSA39V	EMI BEAD CORE	
L1306	EXCELSA39V	EMI BEAD CORE	
L2201	ELESN100JA	COIL PEAKING 10UH	
L2310	EXCELDR35V	FERRITE BEAD	
L2311	ELC12E390L	CHOKE COIL 39UH	
L2314	EXCELDR35V	FERRITE BEAD	
L2315	ELC12E390L	CHOKE COIL 39UH	
L2317	TALL08T330KA	COIL	
L2318	TALL08T330KA	COIL	
L2354	EXCELSA35T	FERRITE BEAD	
L2355	EXCELSA35T	FERRITE BEAD	
L7001	EXCELSA39V	EMI BEAD CORE	
L7002	EXCELSA39V	EMI BEAD CORE	
L7003	EXCELSA39V	EMI BEAD CORE	

Ref. No.	Part No.	Part Name & Description	Remarks
L7004	EXCELSA39V	EMI BEAD CORE	
L7005	EXCELSA39V	EMI BEAD CORE	
L7006	EXCELSA39V	EMI BEAD CORE	
LF801	ELF21N035A	LINE FILTER	⚠
LF803	ELF21N035A	LINE FILTER	⚠
		TRANSISTORS	
Q301	2SC1473ATA	TRANSISTOR	
Q302	2SC3526H	TRANSISTOR	
Q303	2SC1473ATA	TRANSISTOR	
Q304	2SA1309ATA	TRANSISTOR	
Q325	2SC3311ATA	TRANSISTOR	
Q331	2SC3526H	TRANSISTOR	
Q332	2SA1309ATA	TRANSISTOR	
Q353	2SC3942LB	TRANSISTOR	
Q354	B1BAAN000025	TRANSISTOR	
Q355	B1BCAN000004	TRANSISTOR	
Q362	2SC3311ATA	TRANSISTOR	
Q363	2SC3526H	TRANSISTOR	
Q364	2SA1309ATA	TRANSISTOR	
Q365	2SC3311ATA	TRANSISTOR	
Q366	2SC3311ATA	TRANSISTOR	
Q367	2SA1309ATA	TRANSISTOR	
Q368	2SA1309ATA	TRANSISTOR	
Q373	2SC3942LB	TRANSISTOR	
Q374	B1BAAN000025	TRANSISTOR	
Q375	B1BCAN000004	TRANSISTOR	
Q376	2SC3311ATA	TRANSISTOR	
Q393	2SC3942LB	TRANSISTOR	
Q394	B1BAAN000025	TRANSISTOR	
Q395	B1BCAN000004	TRANSISTOR	
Q397	2SC3311ATA	TRANSISTOR	
Q406	2PD601AR-115	TRANSISTOR	
Q501	B1CEML000001	TRANSISTOR	
Q509	2SC1473QRTA	TRANSISTOR	
Q510	2SC1473QRTA	TRANSISTOR	
Q512	2PD601AR-115	TRANSISTOR	
Q513	2PD601AR-115	TRANSISTOR	
Q551	B1BAJW000001	TRANSISTOR	
Q606	2PD601AR-115	TRANSISTOR	
Q701	2SK2538000LB	TRANSISTOR	
Q801	2SK2917LB	TRANSISTOR	
Q802	2PD601AR-115	TRANSISTOR	
Q803	2PB709AR-115	TRANSISTOR	
Q854	2SA19610QAHW	TRANSISTOR	
Q881	UN2214TX	TRANSISTOR	
Q882	UN2115TX	TRANSISTOR	
Q883	UN2215TX	TRANSISTOR	
Q901	2SB1321ARA	TRANSISTOR	
Q903	2SA1309ATA	TRANSISTOR	
Q904	2SD1992ARA	TRANSISTOR	
Q905	2SC3311ATA	TRANSISTOR	
Q906	2SC3311ATA	TRANSISTOR	
Q907	2SA1309ATA	TRANSISTOR	

Ref. No.	Part No.	Part Name & Description	Remarks
Q908	2SC3311ATA	TRANSISTOR	
Q934	2SA1309ATA	TRANSISTOR	
Q935	2SC3311ATA	TRANSISTOR	
Q936	2SC3311ATA	TRANSISTOR	
Q937	2SA1309ATA	TRANSISTOR	
Q938	2SB1321ARA	TRANSISTOR	
Q941	2SD1992ARA	TRANSISTOR	
Q951	2SC3311ATA	TRANSISTOR	
Q952	2SC3311ATA	TRANSISTOR	
Q953	2SC3311ATA	TRANSISTOR	
Q955	2SA1248SRA	TRANSISTOR	
Q956	2SC3116SRA	TRANSISTOR	
Q957	2SA1248SRA	TRANSISTOR	
Q958	2SC3116SRA	TRANSISTOR	
Q959	2SA1248SRA	TRANSISTOR	
Q960	2SC3116SRA	TRANSISTOR	
Q961	2SB1321ARA	TRANSISTOR	
Q962	2SC3311ATA	TRANSISTOR	
Q964	2SD1992ARA	TRANSISTOR	
Q965	2SA1309ATA	TRANSISTOR	
Q966	2SC3311ATA	TRANSISTOR	
Q967	2SC3311ATA	TRANSISTOR	
Q968	2SA1309ATA	TRANSISTOR	
Q1503	2SA1309ATA	TRANSISTOR	
Q1504	B1BAAV000003	TRANSISTOR	
Q1505	2SC3311ATA	TRANSISTOR	
Q2301	UN2215TX	TRANSISTOR	
Q2302	2PB709AR-115	TRANSISTOR	
Q2303	2PD601AR-115	TRANSISTOR	
Q2304	2PB709AR-115	TRANSISTOR	
Q2305	UN2115TX	TRANSISTOR	
Q2306	UNR221600L	TRANSISTOR	
Q2307	UNR221600L	TRANSISTOR	
Q2308	2PD601AR-115	TRANSISTOR	
Q2309	2PD601AR-115	TRANSISTOR	
Q2350	UNR221600L	TRANSISTOR	
Q2352	2PB709AR-115	TRANSISTOR	
Q2358	UNR221600L	TRANSISTOR	
Q2451	2PD601AR-115	TRANSISTOR	
Q2452	2PD601AR-115	TRANSISTOR	
Q7006	2PD601AR-115	TRANSISTOR	
Q7007	2PD601AR-115	TRANSISTOR	
Q7060	2PB709AR-115	TRANSISTOR	
Q7061	2PD601AR-115	TRANSISTOR	
RELAYS			
RL801	K6B1ADA00010	RELAY	⚠
RL802	K6B1ADA00010	RELAY	⚠
RESISTORS			
R001	ERJ6GEYJ101V	RES M 100-J-1/10W	
R002	ERJ6GEYJ101V	RES M 100-J-1/10W	
R004	ERJ6GEYJ101V	RES M 100-J-1/10W	
R005	ERJ6GEYJ101V	RES M 100-J-1/10W	
R008	ERJ6GEYJ103V	RES M 10K-J-1/10W	

Ref. No.	Part No.	Part Name & Description	Remarks
R009	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R010	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R013	ERG1SJ273P	RES M 27K-J-1W	
R015	ERG1SJ273P	RES M 27K-J-1W	
R072	ERDS2TJ101T	RES C 100-J-1/4W	
R073	ERDS2TJ471T	RES C 470-J-1/4W	
R080	ERDS2TJ222T	RES C 2.2K-J-1/4W	
R081	ERDS2TJ222T	RES C 2.2K-J-1/4W	
R082	ERDS2TJ332T	RES C 3.3K-J-1/4W	
R083	ERDS2TJ512T	RES C 5.1K-J-1/4W	
R084	ERDS2TJ912T	RES C 9.1K-J-1/4W	
R086	ERDS2TJ681T	RES C 680-J-1/4W	
R087	ERDS2TJ331T	RES C 330-J-1/4W	
R088	ERDS2TJ392T	RES C 3.9K-J-1/4W	
R089	ERDS2TJ822T	RES C 8.2K-J-1/4W	
R301	ERDS1FJ394P	RES C 390K-J-1/2W	
R302	ERDS2TJ101T	RES C 100-J-1/4W	
R303	EROS2THF2200	RES M 220-F-1/4W	
R304	ERDS2TJ334T	RES C 330K-J-1/4W	
R305	EROS2THF2200	RES M 220-F-1/4W	
R306	EROS2THF1001	RES M 1K-F-1/4W	
R307	ERDS2TJ220T	RES C 22-J-1/4W	
R308	ERDS2TJ334T	RES C 330K-J-1/4W	
R310	ERDS2TJ562T	RES C 5.6K-J-1/4W	
R311	ERDS2TJ470T	RES C 47-J-1/4W	
R312	ERG7ZJ272	RES M 2.7K-J-7W	
R313	ERDS2TJ151T	RES C 150-J-1/4W	
R315	ERDS2TJ563T	RES C 56K-J-1/4W	
R316	ERDS2TJ821T	RES C 820-J-1/4W	
R317	ERDS2TJ332T	RES C 3.3K-J-1/4W	
R318	ERDS2TJ681T	RES C 680-J-1/4W	
R319	ERG12SJ101P	RES M 100-J-1W	
R320	ERDS1FJ330P	RES C 33-J-1/2W	
R321	ERDS1FJ330P	RES C 33-J-1/2W	
R322	ERG12SJ101P	RES M 100-J-1W	
R323	ERDS2TJ470T	RES C 47-J-1/4W	
R325	ERDS2TJ473T	RES C 47K-J-1/4W	
R325	ERDS2TJ473T	RES C 47K-J-1/4W	
R326	ERDS2TJ101T	RES C 100-J-1/4W	
R327	ERC12GK331D	RES C 330-K-1/2W	
R328	ERDS1TJ104T	RES C 100K-J-1/2W	
R329	ERDS1FJ103T	RES C 10K-J-1/2W	
R331	EROS2THF2200	RES M 220-F-1/4W	
R332	ERDS2TJ101T	RES C 100-J-1/4W	
R333	EROS2THF2200	RES M 220-F-1/4W	
R334	ERDS2TJ220T	RES C 22-J-1/4W	
R335	EROS2THF4700	RES M 470-F-1/4W	
R337	ERDS2TJ151T	RES C 150-J-1/4W	
R338	ERDS2TJ681T	RES C 680-J-1/4W	
R341	ERDS2TJ101T	RES C 100-J-1/4W	
R344	ERG7ZJ272	RES M 2.7K-J-7W	
R345	ERDS2TJ470T	RES C 47-J-1/4W	
R346	ERDS2TJ470T	RES C 47-J-1/4W	
R348	ERDS2TJ563T	RES C 56K-J-1/4W	

Ref. No.	Part No.	Part Name & Description	Remarks
R349	ERDS2TJ821T	RES C 820-J-1/4W	
R350	ERG12SJ101P	RES M 100-J-1W	
R351	ERDS1FJ330P	RES C 33-J-1/2W	
R352	ERDS1FJ330P	RES C 33-J-1/2W	
R353	ERG12SJ101P	RES M 100-J-1W	
R354	ERDS2TJ473T	RES C 47K-J-1/4W	
R355	ERDS1FJ103T	RES C 10K-J-1/2W	
R356	ERC12GK331D	RES C 330-K-1/2W	
R357	ERDS1TJ104T	RES C 100K-J-1/2W	
R360	ERDS2TJ470T	RES C 47-J-1/4W	
R363	ERDS2TJ220T	RES C 22-J-1/4W	
R365	ERDS2TJ221T	RES C 220-J-1/4W	
R366	ERDS2TJ101T	RES C 100-J-1/4W	
R367	EROS2THF2200	RES M 220-F-1/4W	
R368	EROS2THF2200	RES M 220-F-1/4W	
R369	ERDS2TJ472T	RES C 4.7K-J-1/4W	
R370	EROS2THF1470	RES M 1.47K-F-1/4W	
R371	EROS2THF1001	RES M 1K-F-1/4W	
R372	EROS2THF82R0	RES M 82.0-F-1/4W	
R374	ERDS2TJ151T	RES C 150-J-1/4W	
R375	ERDS2TJ470T	RES C 47-J-1/4W	
R378	ERDS2TJ101T	RES C 100-J-1/4W	
R379	ERDS2TJ563T	RES C 56K-J-1/4W	
R380	ERDS2TJ821T	RES C 820-J-1/4W	
R382	ERDS1FJ103T	RES C 10K-J-1/2W	
R383	ERG12SJ101P	RES M 100-J-1W	
R384	ERDS1FJ330P	RES C 33-J-1/2W	
R385	ERDS1FJ330P	RES C 33-J-1/2W	
R386	ERG12SJ101P	RES M 100-J-1W	
R387	ERG7ZJ272	RES M 2.7K-J-7W	
R389	ERDS2TJ473T	RES C 47K-J-1/4W	
R390	ERC12GK331D	RES C 330-K-1/2W	
R391	ERDS1TJ104T	RES C 100K-J-1/2W	
R392	EROS2THF8201	RES M 8.2K-F-1/4W	
R393	EROS2THF5101	RES M 8.2K-F-1/4W	
R394	EROS2THF9760	RES M 976-F-1/4W	
R395	ERDS2TJ221T	RES C 220-J-1/4W	
R396	ERDS2TJ472T	RES C 4.7K-J-1/4W	
R397	EROS2THF1201	RES M 1.2K-F-1/4W	
R398	EROS2THF3300	RES M 330-F-1/4W	
R408	ERJ6GEYJ272V	RES M 2.7K-J-1/10W	
R409	ERDS2TJ563T	RES C 56K-J-1/4W	
R410	ERJ6GEYJ224V	RES M 220K-J-1/10W	
R411	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R412	ERJ6GEYJ682V	RES M 6.8K-J-1/10W	
R415	ERG3FJ331H	RES M 330-J-3W	
R421	ERJ6ENF2702V	RES M 27K-F-1/10W	
R422	ERJ6ENF82R0V	RES M 82-F-1/10W	
R423	ERJ6ENF5601V	RES M 5.6K-F-1/10W	
R425	ERDS1FJ1R0T	RES C 1.0-J-1/2W	
R426	ERJ6ENF1502V	RES M 15K-F-1/10W	
R428	ERJ6ENF1502V	RES M 15K-F-1/10W	
R434	ERX12SJ1R8V	RES M 1.8-J-1/2W	
R435	ERX12SJ1R8V	RES M 1.8-J-1/2W	

Ref. No.	Part No.	Part Name & Description	Remarks
R464	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R465	ERJ6GEYJ472V	RES M 4.7K-J-1/10W	
R465	ERJ6GEYJ472V	ES M 4.7K-J-1/10W	
R466	ERJ6GEYJ562V	RES M 5.6K-J-1/10W	
R470	ERDS2TJ331T	RES C 330-J-1/4W	
R471	ERDS2TJ331T	RES C 330-J-1/4W	
R472	ERDS2TJ331T	RES C 330-J-1/4W	
R501	ERJ6GEYJ104V	RES M 100K-J-1/10W	
R502	ERJ6GEYJ680V	RES M 68-J-1/10W	
R503	ERG2FJ180H	RES M 18-J-2W	
R504	ERG3FJ271H	RES M 270-J-3W	
R505	ERG1SJ120P	RES M 12-J-1W	
R506	ERX1SJR47P	RES M .47-J-1W	
R512	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R513	ERDS2TJ471T	RES C 470-J-1/4W	
R514	EROS2THF5602	RES M 56K-F-1/4W	
R515	EROS2THF4642	RES M 45.4K 1/4W	
R516	ERJ6GEYJ101V	RES M 100-J-1/10W	
R517	EROS2THF2002	RES M 20K-F-1/4W	
R518	ERX12SJR22V	RES M .22-J-1/2W	
R519	ERQ12HKR22P	RES F .22-K-1/2W	
R520	ERQ12HJ330P	RES F 33-J-1/2W	⚠
R521	EROS2THF2612	RES M 260-1/4W	⚠
R522	EROS2THF7151	RES M 7.15K-F-1/4W	⚠
R523	ERDS2TJ275T	RES C 2.7MEG-J-1/4W	
R524	EROS2THF2002	RES M 20K-F-1/4W	
R525	ERJ6GEYJ272V	RES M 2.7K-J-1/10W	
R534	EROS2THF1203	RES M 120K-F-1/4W	
R535	ERDS2TJ222T	RES C 2.2K-J-1/4W	
R541	ERDS2TJ563T	RES C 56K-J-1/4W	
R550	EROS2THF1002	RES M 10K-F-1/4W	
R560	ERJ6GEYJ101V	RES M 100-J-1/10W	
R561	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R562	ERJ6GEYJ104V	RES M 100K-J-1/10W	
R621	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R622	ERJ6GEYJ152V	RES M 1.5K-J-1/10W	
R624	ERJ6GEYJ101V	RES M 100-J-1/10W	
R643	ERJ6GEYJ101V	RES M 100-J-1/10W	
R653	ERDS2TJ101T	RES C 100-J-1/4W	
R654	ERDS2TJ184T	RES C 180K-J-1/4W	
R655	ERDS2TJ184T	RES C 180K-J-1/4W	
R704	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R706	ERDS1FJ680T	RES C 68-J-1/2W	
R708	ERF5AK4R7H	RES W 4.7-K-5W	
R800	D1F53R3EA001	RES M 3.3-1/2W	⚠
R805	ERDS2TJ101T	RES C 100-J-1/4W	
R808	ERX12SZJR12P	RES M .12-J-1/2W	
R809	ERJ6GEYJ225V	RES M 2.2M-J-1/10W	
R810	ERX12SZJR12P	RES M .12-J-1/2W	
R811	ERX12SZJR12P	RES M .12-J-1/2W	
R812	ERDS2TJ103T	RES C 10K-J-1/4W	
R813	ERDS1FJ561T	RES C 560-J-1/2W	
R814	ERDS2TJ4R7T	RES C 4.7-J-1/4W	

[illegible]	[illegible]	[illegible]	

Ref. No.	Part No.	Part Name & Description	Remarks
R815	ERJ6GEYJ301V	RES M 300-J-1/10W	
R816	ERDS2TJ471T	RES C 470-J-1/4W	
R817	ERJ6ENF2001V	RES M 2K-F-1/10W	
R818	ERDS1FJ100T	RES C 10-J-1/2W	
R820	ERDS1FJ470T	RES C 47-J-1/2W	
R822	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R833	ERJ6GEYJ101V	RES M 100-J-1/10W	
R835	ERDS2TJ101T	RES C 100-J-1/4W	
R836	ERJ6GEYJ101V	RES M 100-J-1/10W	
R839	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R840	ERJ6GEYJ101V	RES M 100-J-1/10W	
R846	ERDS2TJ223T	RES C 22K-J-1/4W	
R847	ERDS2TJ272T	RES C 2.7K-J-1/4W	
R857	ERX1SJ1R0P	RES M 1.0-J-1W	
R858	ERX1SJ1R0P	RES M 1.0-J-1W	
R859	ERDS2TJ103T	RES C 10K-J-1/4W	
R860	ERDS1FJ222T	RES C 2200-J-1/2W	
R862	ERG3FJ333H	RES M 33K-J-3W	
R865	ERJ6GEYJ153V	RES M 15K-J-1/10W	
R866	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R867	ERJ6GEYJ472V	RES M 4.7K-J-1/10W	
R870	ERJ6GEYJ104V	RES M 100K-J-1/10W	
R871	ERDS2TJ272T	RES C 2.7K-J-1/4W	
R872	ERJ6GEYJ333V	RES M 33K-J-1/10W	
R873	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R874	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R875	ERJ6ENF6191V	RES M 6190-F-1/10W	
R877	ERJ6ENF1781V	RES M 1.78K-F-1/10W	
R878	ERJ6ENF1001V	RES M 1K-F-1/10W	
R879	ERJ6ENF1001V	RES M 1K-F-1/10W	
R880	ERJ6ENF1001V	RES M 1K-F-1/10W	
R881	ERDS1TJ560T	RES C 56-J-1/2W	
R882	ERJ6ENF9530V	RES M 953-F-1/10W	
R883	ERJ6ENF6340V	RES M 634-F-1/10W	
R885	ERJ6ENF1001V	RES M 1K-F-1/10W	
R886	ERJ6ENF1001V	RES M 1K-F-1/10W	
R901	ERDS2FJ122T	RES C 1.2K-J-1/2W	
R902	ERDS2TJ103T	RES C 10K-J-1/4W	
R903	ERDS2TJ683T	RES C 68K-J-1/4W	
R904	ERDS2TJ683T	RES C 68K-J-1/4W	
R905	ERDS2TJ103T	RES C 10K-J-1/4W	
R906	ERDS2TJ122T	RES C 1.2K-J-1/4W	
R907	ERDS1FVJ470T	RES C 47-J-1/2W	
R908	ERDS1FVJ470T	RES C 47-J-1/2W	
R909	ERDS1FVJ4R7T	RES C 4.7-J-1/2W	
R910	ERDS2TJ4R7T	RES C 4.7-J-1/4W	
R911	ERG3SJS221H	RES M 220-J-3W	
R912	ERDS2TJ101T	RES C 100-J-1/4W	
R913	ERDS2TJ152T	RES C 1.5K-J-1/4W	
R914	ERDS2TJ152T	RES C 1.5K-J-1/4W	
R915	ERQ14AJ220P	RES F 22-J-1/4W	
R916	ERQ14AJ220P	RES F 22-J-1/4W	
R917	ERQ14AJ100P	RES F 10-J-1/4W	
R918	ERDS2TJ472T	RES C 4.7K-J-1/4W	

Ref. No.	Part No.	Part Name & Description	Remarks
R919	**ERDS2TJ472T**	**RES C 4.7K-J-1/4W**	
R920	**ERDS2TJ681T**	**RES C 680-J-1/4W**	
R921	**ERDS2TJ151T**	**RES C 150-J-1/4W**	
R925	**ERDS2TJ151T**	**RES C 150-J-1/4W**	
R926	**ERDS2TJ151T**	**RES C 150-J-1/4W**	
R928	**ERQ14AJ220P**	**RES F 22-J-1/4W**	
R929	**ERDS2TJ101T**	**RES C 100-J-1/4W**	
R940	**ERDS2TJ472T**	**RES C 4.7K-J-1/4W**	
R941	**ERDS2TJ472T**	**RES C 4.7K-J-1/4W**	
R942	**ERDS2TJ152T**	**RES C 1.5K-J-1/4W**	
R943	**ERDS2TJ152T**	**RES C 1.5K-J-1/4W**	
R944	**ERDS2TJ681T**	**RES C 680-J-1/4W**	
R945	**ERDS2TJ681T**	**RES C 680-J-1/4W**	
R946	**ERQ14AJ100P**	**RES F 10-J-1/4W**	
R947	**ERQ14AJ220P**	**RES F 22-J-1/4W**	
R948	**ERDS2FJ122T**	**RES C 1.2K-J-1/2W**	
R949	**ERDS2TJ103T**	**RES C 10K-J-1/4W**	
R950	**ERDS2TJ683T**	**RES C 68K-J-1/4W**	
R951	**ERDS2TJ683T**	**RES C 68K-J-1/4W**	
R952	**ERDS2TJ103T**	**RES C 10K-J-1/4W**	
R953	**ERDS2TJ122T**	**RES C 1.2K-J-1/4W**	
R954	**ERDS1FVJ470T**	**RES C 47-J-1/2W**	
R955	**ERDS1FVJ470T**	**RES C 47-J-1/2W**	
R956	**ERDS1FVJ4R7T**	**RES C 4.7-J-1/2W**	
R957	**ERDS2TJ4R7T**	**RES C 4.7-J-1/4W**	
R958	**ERG3SJS221H**	**RES M 220-J-3W**	
R959	**ERDS2TJ681T**	**RES C 680-J-1/4W**	
R961	**ERDS2FJ122T**	**RES C 1.2K-J-1/2W**	
R962	**ERDS2TJ103T**	**RES C 10K-J-1/4W**	
R963	**ERDS2TJ683T**	**RES C 68K-J-1/4W**	
R964	**ERDS2TJ683T**	**RES C 68K-J-1/4W**	
R965	**ERDS2TJ103T**	**RES C 10K-J-1/4W**	
R966	**ERDS2TJ122T**	**RES C 1.2K-J-1/4W**	
R967	**ERDS1FVJ470T**	**RES C 47-J-1/2W**	
R968	**ERDS1FVJ470T**	**RES C 47-J-1/2W**	
R969	**ERDS1FVJ4R7T**	**RES C 4.7-J-1/2W**	
R970	**ERDS2TJ4R7T**	**RES C 4.7-J-1/4W**	
R971	**ERG3SJS221H**	**RES M 220-J-3W**	
R972	**ERDS2TJ101T**	**RES C 100-J-1/4W**	
R973	**ERDS2TJ152T**	**RES C 1.5K-J-1/4W**	
R974	**ERDS2TJ152T**	**RES C 1.5K-J-1/4W**	
R975	**ERQ14AJ100P**	**RES F 10-J-1/4W**	
R976	**ERQ14AJ220P**	**RES F 22-J-1/4W**	
R977	**ERDS2TJ151T**	**RES C 150-J-1/4W**	
R978	**ERQ14AJ220P**	**RES F 22-J-1/4W**	
R979	**ERDS2TJ472T**	**RES C 4.7K-J-1/4W**	
R980	**ERDS2TJ472T**	**RES C 4.7K-J-1/4W**	
R981	**ERDS2TJ681T**	**RES C 680-J-1/4W**	
R1322	**ERJ6GEYJ101V**	**RES M 100-J-1/10W**	
R1323	**ERJ6GEYJ101V**	**RES M 100-J-1/10W**	
R1324	**ERJ6GEYJ101V**	**RES M 100-J-1/10W**	
R1325	**ERJ6GEYJ101V**	**RES M 100-J-1/10W**	
R1326	**ERJ6GEYJ101V**	**RES M 100-J-1/10W**	
R1327	**ERJ6GEYJ101V**	**RES M 100-J-1/10W**	

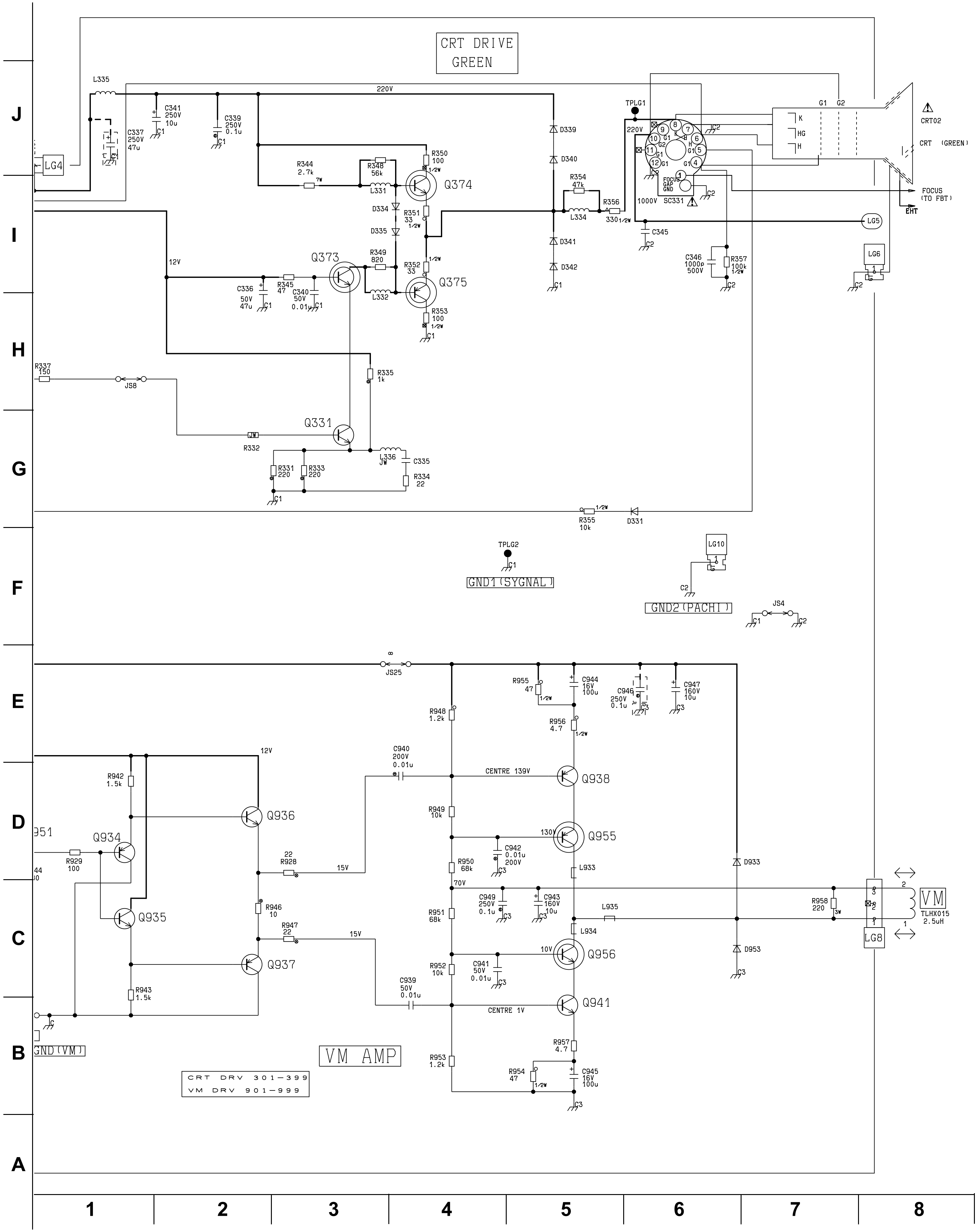
Ref. No.	Part No.	Part Name & Description	Remarks
R1329	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1330	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1331	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1332	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1338	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R1502	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R1503	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R1504	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R1505	EROS2THF1331	RES M 1.33K-F-1/4W	
R1506	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R1507	ERG3SJD152L	RES M 1.5K-J-3W	
R1508	ERJ6GEYJ152V	RES M 1.5K-J-1/10W	
R1509	ERDS2TJ102T	RES C 1K-J-1/4W	
R1510	ERG2SJD333L	RES M 33K-J-2W	
R1511	ERG2SJD333L	RES M 33K-J-2W	
R1512	ERJ6ENF2201V	RES M 2.2K-F-1/10W	
R1514	ERG2SJD333L	RES M 33K-J-2W	
R1515	ERJ6ENF1001V	RES M 1K-F-1/10W	
R1516	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1517	ERJ6ENF3571V	RES M 3.57K-F-1/10W	
R1518	ERG2SJD333L	RES M 33K-J-2W	
R1519	ERDS2TJ101T	RES C 100-J-1/4W	
R1520	ERDS2TJ221T	RES C 220-J-1/4W	
R1521	EROS2THF1500	RES M 150-F-1/4W	
R1522	ERC12GK103D	RES C 10K-K-1/2W	
R1523	ERDS2TJ104T	RES C 100K-J-1/4W	
R1524	EROS2THF1401	RES M 1.4K-F-1/4W	
R1527	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R1528	ERDS2TJ332T	RES C 3.3K-J-1/4W	
R1529	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R1532	ERJ6ENF2201V	RES M 2.2K-F-1/10W	
R1542	ERG2SJD333L	RES M 33K-J-2W	
R1544	ERJ6GEYJ471V	RES M 470-J-1/10W	
R1546	ERJ6GEYJ221V	RES M 220-J-1/10W	
R1599	ERJ6ENF9761V	RES M 9760-F-1/10W	
R2201	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R2202	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2203	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2204	ERJ6GEYJ101V	RES M 100-J-1/10W	
R2302	ERJ6GEYJ472V	RES M 4.7K-J-1/10W	
R2307	ERJ6ENF1501V	RES M 1.5K-F-1/10W	
R2309	ERJ12YJ101U	RES M 100-J-1/2W	
R2310	ERJ6ENF5232V	RES M 5.32K-F-1/10W	
R2312	ERJ6ENF4701V	RES M 4.7K-F-1/10W	
R2315	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R2316	ERJ6GEYJ683V	RES M 68K-J-1/10W	
R2320	ERJ6GEYJ223V	RES M 22K-J-1/10W	
R2321	ERJ6ENF1202V	RES.M 1.2K-F-1/10W	
R2322	ERJ6ENF1202V	RES.M 1.2K-F-1/10W	
R2324	ERJ6ENF1303V	RES M 130K-F-1/10W	
R2326	ERJ6GEYJ223V	RES M 22K-J-1/10W	
R2328	ERJ6ENF1202V	RES.M 1.2K-F-1/10W	
R2331	ERJ6GEYJ683V	RES M 68K-J-1/10W	
R2333	ERJ6ENF1202V	RES.M 1.2K-F-1/10W	

Ref. No.	Part No.	Part Name & Description	Remarks
R2334	ERJ6ENF4701V	RES M 4.7K-F-1/10W	
R2336	ERJ6ENF5232V	RES M 5.32K-F-1/10W	
R2337	ERJ6ENF1501V	RES M 1.5K-F-1/10W	
R2339	ERJ12YJ101U	RES M 100-J-1/2W	
R2341	ERJ6GEYJ122V	RES M 1.2K-J-1/10W	
R2342	ERJ6GEYJ122V	RES M 1.2K-J-1/10W	
R2343	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R2344	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R2345	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R2346	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R2347	ERJ6GEYJ473V	RES M 47K-J-1/10W	
R2348	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R2349	ERJ6GEYJ271V	RES M 270-J-1/10W	
R2350	ERJ6GEYJ273V	RES M 27K-J-1/10W	
R2351	ERJ6GEYJ472V	RES M 4.7K-J-1/10W	
R2352	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R2353	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2354	ERJ6GEYJ392V	RES M 3.9K-J-1/10W	
R2356	ERJ6GEYJ183V	RES M 18K-J-1/10W	
R2357	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R2358	ERJ6GEYJ273V	RES M 27K-J-1/10W	
R2359	ERJ6GEYJ472V	RES M 4.7K-J-1/10W	
R2360	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R2361	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2362	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2363	ERJ6GEYJ223V	RES M 22K-J-1/10W	
R2364	ERJ6GEYJ473V	RES M 47K-J-1/10W	
R2365	ERJ6GEYJ473V	RES M 47K-J-1/10W	
R2366	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2367	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2378	ERJ6ENF1501V	RES M 1.5K-F-1/10W	
R2380	ERJ6GEYJ392V	RES M 3.9K-J-1/10W	
R2391	ERJ6GEYJ392V	RES M 3.9K-J-1/10W	
R2420	ERJ6GEYJ392V	RES M 3.9K-J-1/10W	
R2432	ERJ6ENF1501V	RES M 1.5K-F-1/10W	
R2434	ERJ6GEYJ392V	RES M 3.9K-J-1/10W	
R2451	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2452	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2453	ERJ6GEYJ681V	RES M 680-J-1/10W	
R2454	ERJ6GEYJ681V	RES M 680-J-1/10W	
R2455	ERJ6GEYJ101V	RES M 100-J-1/10W	
R2456	ERJ6GEYJ101V	RES M 100-J-1/10W	
R2457	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R2458	ERJ6GEYJ682V	RES M 6.8K-J-1/10W	
R2459	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R2460	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R2461	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R3201	ERJ6GEYJ750V	RES M 75-J-1/10W	
R3202	ERJ6GEYJ750V	RES M 75-J-1/10W	
R3301	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3302	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3303	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3304	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3305	ERJ6GEYJ184V	RES M 180K-J-1/10W	

Ref. No.	Part No.	Part Name & Description	Remarks
R3306	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3307	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3308	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3309	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3310	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3311	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3312	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3313	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3314	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R3315	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3316	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3317	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3318	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3319	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3320	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R3321	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3322	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3323	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3324	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3326	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3327	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3328	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R7001	ERG2FJ820H	RES M 82-J-2W	
R7002	ERG2FJ121H	RES M 120-J-2W	
R7003	ERG2FJ820H	RES M 82-J-2W	
R7004	ERG2FJ121H	RES M 120-J-2W	
R7005	ERG2FJ820H	RES M 82-J-2W	
R7006	ERG2FJ121H	RES M 120-J-2W	
R7011	ERX2FJ2R2H	RES M 2.2-J-2W	
R7012	ERX2FJ2R2H	RES M 2.2-J-2W	
R7013	ERX2FJ2R2H	RES M 2.2-J-2W	
R7014	ERX2FJ2R2H	RES M 2.2-J-2W	
R7015	ERX2FJ2R2H	RES M 2.2-J-2W	
R7016	ERX2FJ2R2H	RES M 2.2-J-2W	
R7023	ERJ6GEYJ273V	RES M 27K-J-1/10W	
R7024	ERJ6GEYJ472V	RES M 4.7K-J-1/10W	
R7026	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R7027	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R7029	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R7030	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R7031	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R7032	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R7034	ERJ6GEYJ273V	RES M 27K-J-1/10W	
R7035	ERJ6GEYJ472V	RES M 4.7K-J-1/10W	
R7036	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R7037	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R7038	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R7040	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R7041	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R7045	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R7046	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R7047	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R7048	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R7052	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	

Ref. No.	Part No.	Part Name & Description	Remarks
R7055	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R7058	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R7059	ERJ6GEYJ104V	RES M 100K-J-1/10W	
R7060	ERX1SJR27P	RES M .27-J-1W	
R7061	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R7062	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R7063	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R7064	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R7065	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R7066	ERX1SJR27P	RES M .27-J-1W	
SWITCHES			
SW080	EVQPBD05R	SWITCH	
SW081	EVQPBD05R	SWITCH	
SW082	EVQPBD05R	SWITCH	
SW083	EVQPBD05R	SWITCH	
SW084	EVQPBD05R	SWITCH	
SW085	EVQPBD05R	SWITCH	
SW086	EVQPBD05R	SWITCH	
SW087	EVQPBD05R	SWITCH	
SW088	EVQPBD05R	SWITCH	
TRANSFORMERS			
T501	ETH19K204AZ	TRANSFORMER	
T551	TLF2AA009	TRASNFORMER FLYBACK	⚠
T801	ETS42AD495AD	TRANSFORMER	⚠
T802	ETP30KB941JG	TRANSFORMER	⚠
OTHERS			
TU001	ENGF6302GF	MAIN TUNER	⚠
TU002	ENG36A08GF	SUB-TUNER	⚠
M001	TSX2AA0421	AC LINE CORD	⚠
1	TXFCRT37JSER	CRT(BLUE)	
	TXFCRT38JSER	CRT(GREEN)	
	TXFCRT39JSER	CRT(RED)	
M002	TJS2AC0051	CRT SOCKET	⚠
2	KDY2ASF83F	DEFLECTION YOKE	⚠
M003	TXF3A01ECV	DAG GND	⚠
3	TKG2AF021-1	A/B LENS	
4	TKG2AA50111	MIRROR GLASS	
5	TMW2AX0041B	MIRROR BRACKET (SIDE)	
6	TMW2AX0161	MIRROR BRACKET (TOP)	
7	TKG2AD00131	SCREEN PROTECTIVE	
8	TKG2AH50381	SCREEN LENTICULAR	
9	TKG2AH50611	SCREEN FRESNEL	
10	TKE2AA00902S	SCREEN FRAME	
11	TKP2AA1032S	SCREEN FRAME COVER	
12	TKU2AC4101S	BACK CABINET	
13	TXFKP07JSER	TOP SHELF	
14	TKD2AX5011S	FRONT BOARD	
15	TKP2AA1042S	FRONT COVER	
16	TKP2AA1071S	RIGHT SIDE PANEL	
	TKP2AA1072S	LEFT SIDE PANEL	
17	TKX2AA0221S	PLASTIC BASE	

Ref. No.	Part No.	Part Name & Description	Remarks
18	TKD2AX2831S	INNER BOARD	
19	TKU2AC4201S	LOWER BACK CABINET	
20	EAST6PH08P6	SPEAKER (TWEETER)	
	TAS2AA0022	SPEAKER (TWEETER)	
21	EAST16P51A6	SPEAKER (WOOFER)	
	TAS2AA0027	SPEAKER (WOOFER)	
22	TKP2AA1101S	SPEAKER BASE COVER	
23	TKP2AA1052S	SPEAKER GRILLE	
24	TLH2AH001	DISTRIBUTOR	⚠
25	D9ZZ00000079	FOCUS PACK	⚠
M004	TMX2AX0031	FOCUS BRACKET	
26	TKP2AA1062	SD-A/V PANEL	
M005	TBX2AA0241	DISC BUTTON	
27	TBX2AA0271	KEY BUTTON	
M006	TKP2AA1131	LED PANEL	
M007	TMM2AE10171	GROMMET SQUARE	
28	TXFKP08JSER	A/V REAR COVER	
JK1001	TJB2AA0482	TERMINAL A/V FRONT	
JK3301	TJB2AA0521	CONNECTOR (COMPONENT INPUT)	
JK3302A	TJB2AA0532	CONNECTOR (A/V INPUT)	
JK5001	K1FA119E0001	HDMI CONNECTOR	
OTHER ACCESSORIES			
M008	TQB2AA0506	OWNER’S MANUAL	
M009	EUR7603ZF0	TRANSMITTER REMOTE CONTROL	
M010	UR76EC0303E	BATTERY COVER(REMOTE CONTROL)	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GREEN
L335
C341
250V
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C339
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C337
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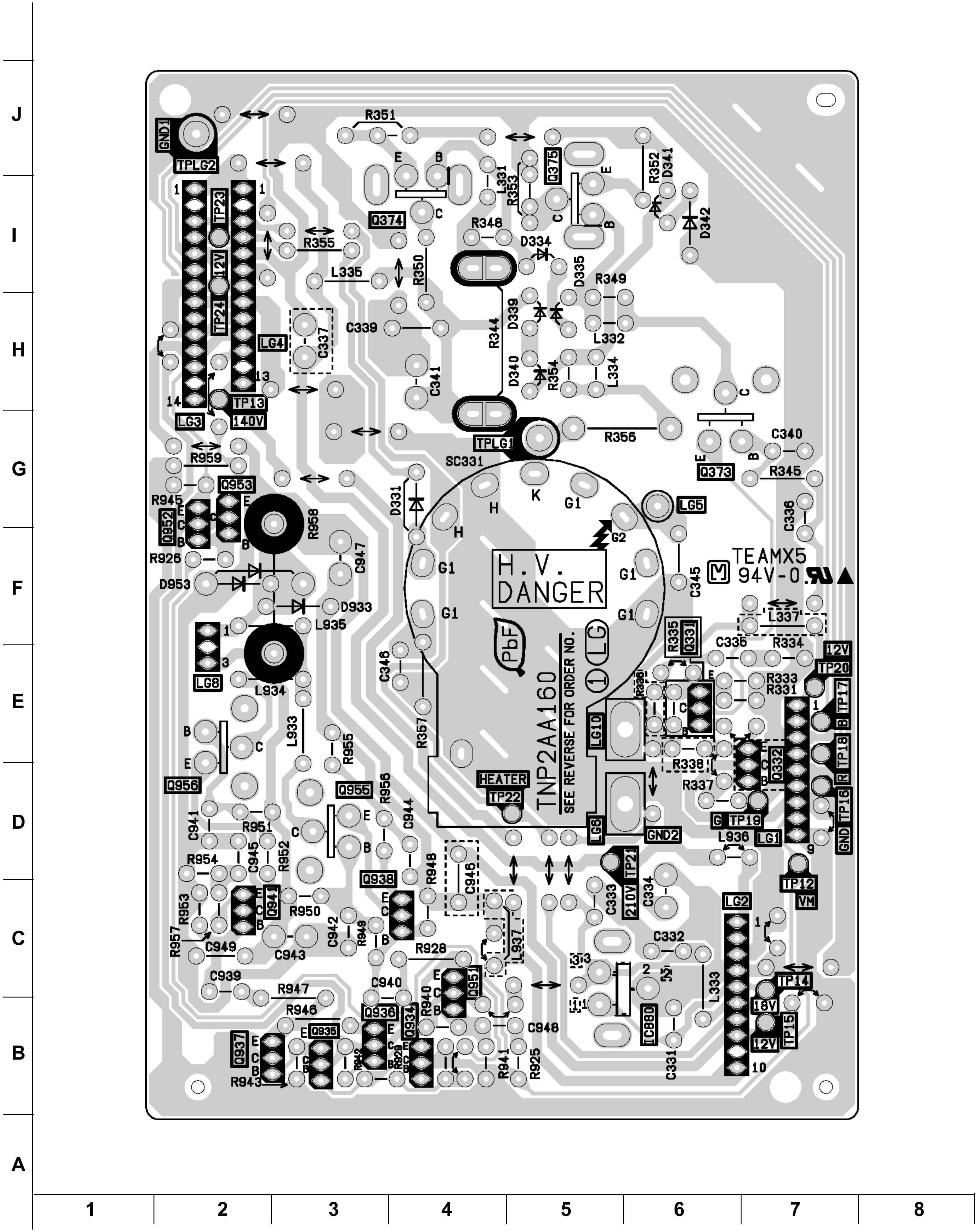
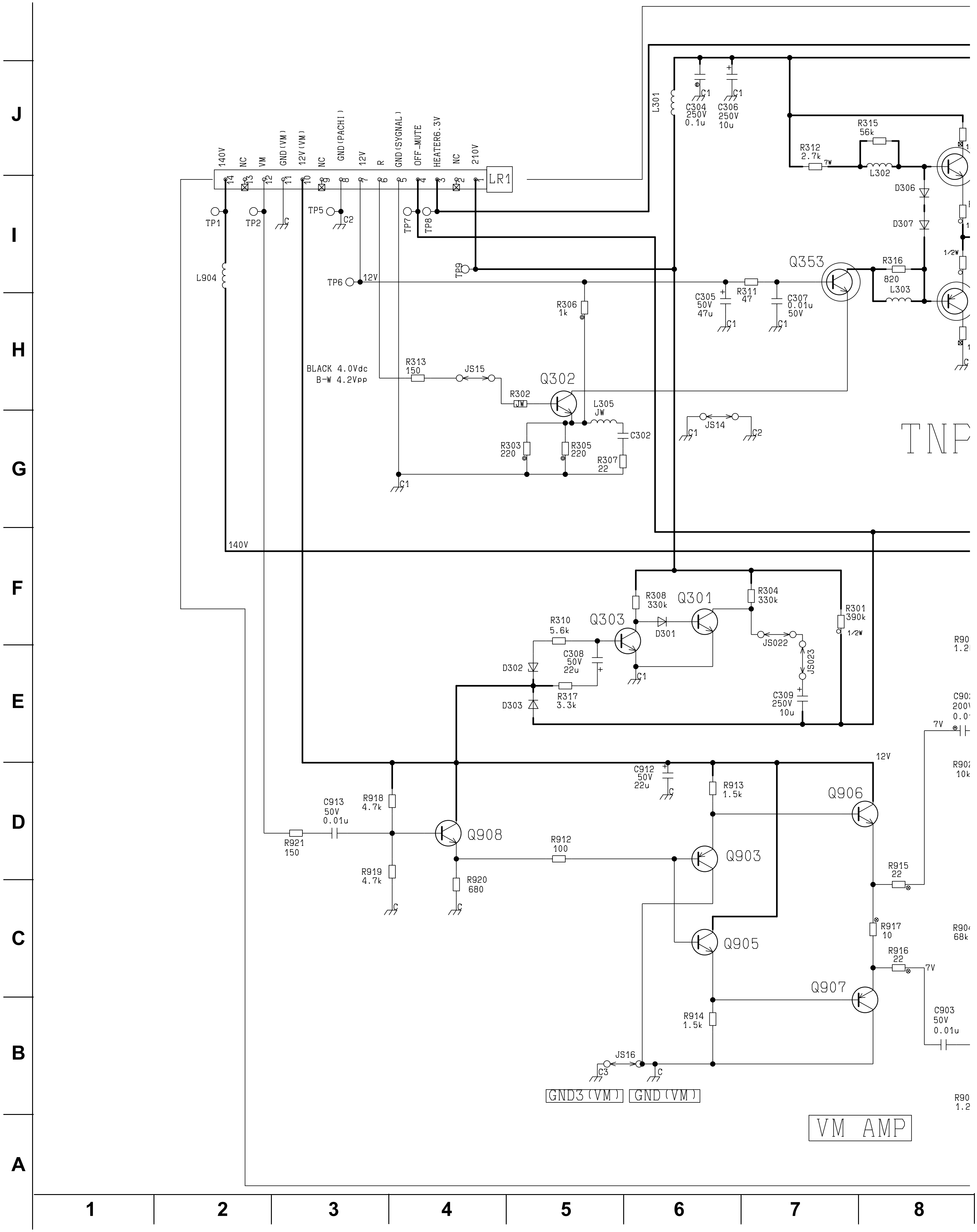
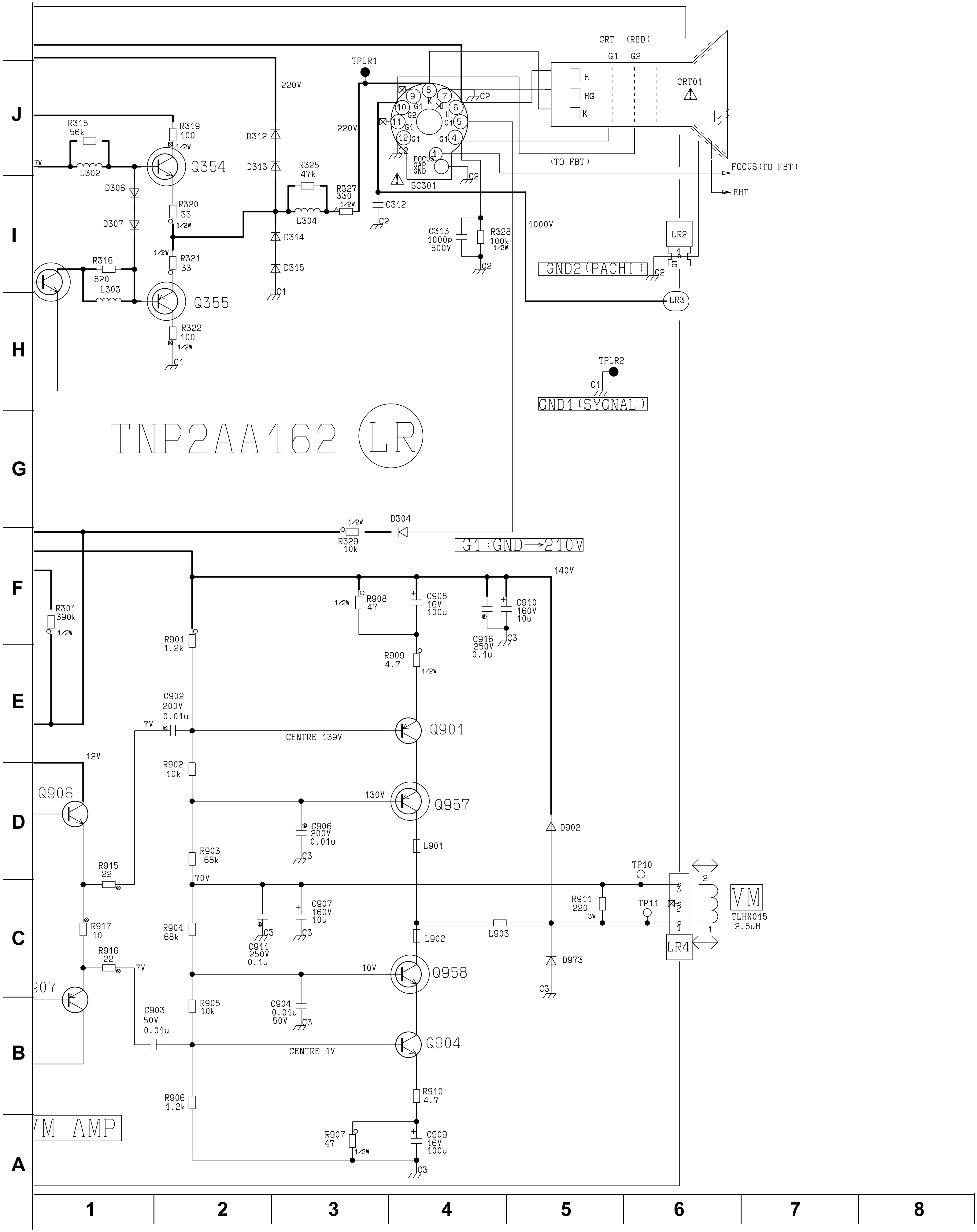
47u
LG4
220V
D339
D340
D341
D342
TPLG1
220V
SC331
1000V
FOCUS
GAP
GND
C2
G1
G2
K
HG
H
CRT02
CRT (GREEN)
FOCUS
(TO FBT)
EHT
LG5
LG6
R344
2.7k
R348
56k
L331
R350
100
1/2W
Q374
D334
D335
R351
33
R349
820
R352
33
Q373
Q375
L332
R353
100
R354
47k
L334
R356
330
C345
C346
1000p
500V
R357
100k
12V
C336
50V
47u
R345
47
C340
50V
0.01u
C1
R337
150
JS8
R335
1k
Q331
R332
JW
R331
220
R333
220
L336
JW
C335
R334
22
R355
10k
D331
TPLG2
GND1(SYGNAL)
LG10
GND2(PACHI)
JS4
JS25
R955
47
C944
16V
100u
C946
250V
0.1u
C947
160V
10u
C3
R948
1.2k
R956
4.7
12V
C940
200V
0.01u
CENTRE 139V
Q938
R942
1.5k
Q936
R949
10k
130V
Q955
C942
0.01u
200V
951
Q934
R929
100
22
R928
15V
R950
68k
L933
D933
70V
C949
250V
0.1u
C943
160V
10u
R946
10
R958
220
3W
VM
TLHX015
2.5uH
Q935
R947
22
15V
R951
68k
L935
L934
LG8
D953
Q937
10V
Q956
R952
10k
C941
50V
0.01u
R943
1.5k
C939
50V
0.01u
CENTRE 1V
Q941
GND(VM)
VM AMP
R957
4.7
R953
1.2k
R954
47
C945
16V
100u
CRT DRV 301-399
VM DRV 901-999
J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8

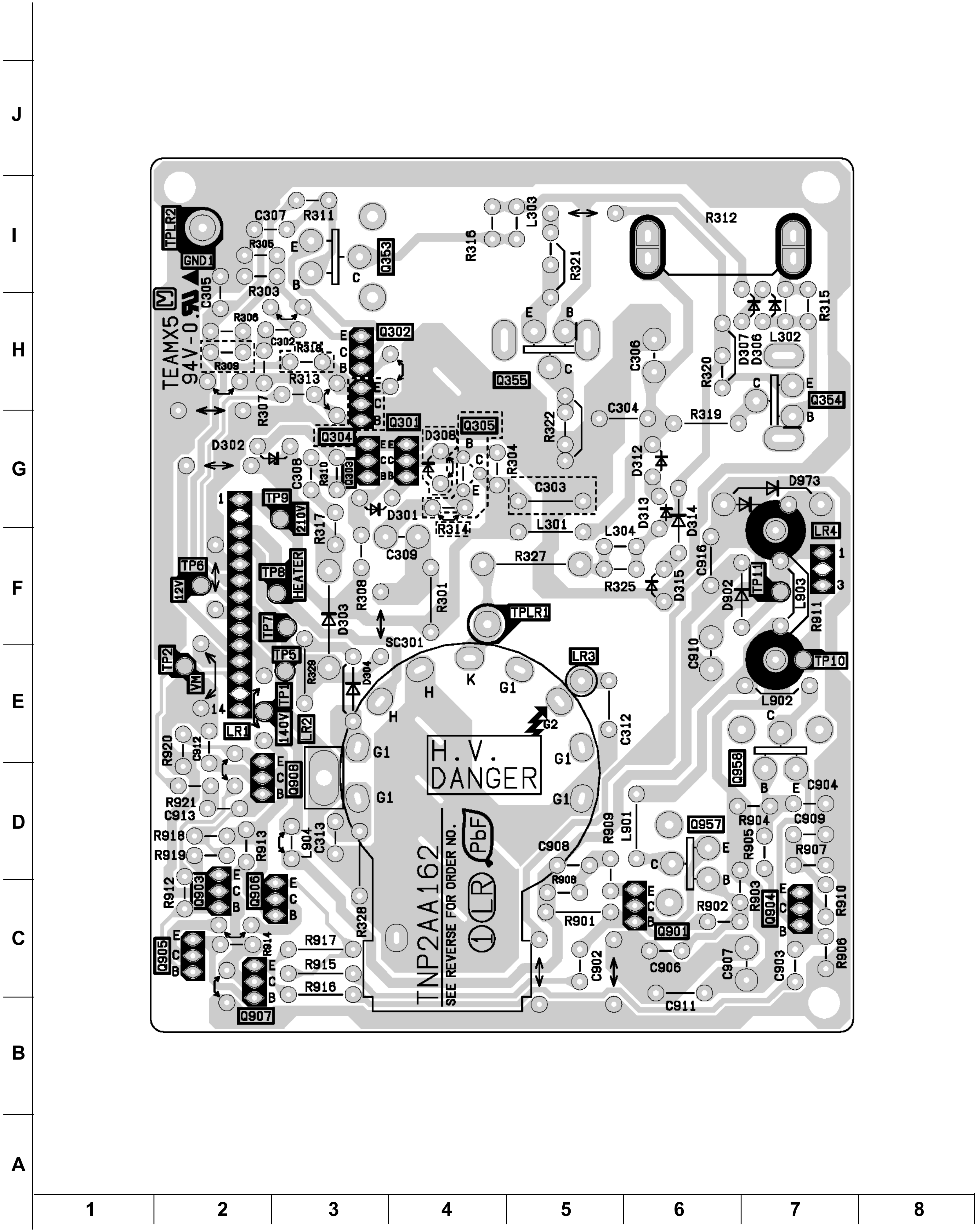


J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
GND1
TPLG2
TP23
12V
TP24
LG4
TP13
140V
LG3
R351
Q375
Q374
R352
D341
D342
R353
L331
R355
L335
R350
R348
D334
D335
R349
C337
C339
R344
D339
L332
C341
D340
R354
L334
TPLG1
R356
SC331
C340
Q373
R345
R959
Q953
R945
Q952
R958
R926
C947
D331
H
K
G1
G2
LG5
C336
H.V.
DANGER
TEAMX5
94V-0
D953
D933
L935
C345
G1
PbF
LG8
L934
C346
R335
Q331
L337
C335
R334
12V
TP20
R333
R331
TP17
LG10
TNP2AA160
SEE REVERSE FOR ORDER NO.
LG
L933
R955
R357
R336
R338
Q332
TP18
Q956
R337
Q955
HEATER
TP22
R956
C944
LG6
GND2
TP19
LG1
TP16
GND
C941
R951
L936
R954
C945
R952
C946
R948
Q938
TP21
210V
C333
C334
TP12
VM
Q941
R953
R950
C942
R949
L937
LG2
R957
C949
C943
R928
C332
C939
R947
C940
Q951
R940
IC880
L333
TP14
18V
R946
Q936
Q934
C948
TP15
Q937
Q935
R942
R929
R941
R925
C331
R943

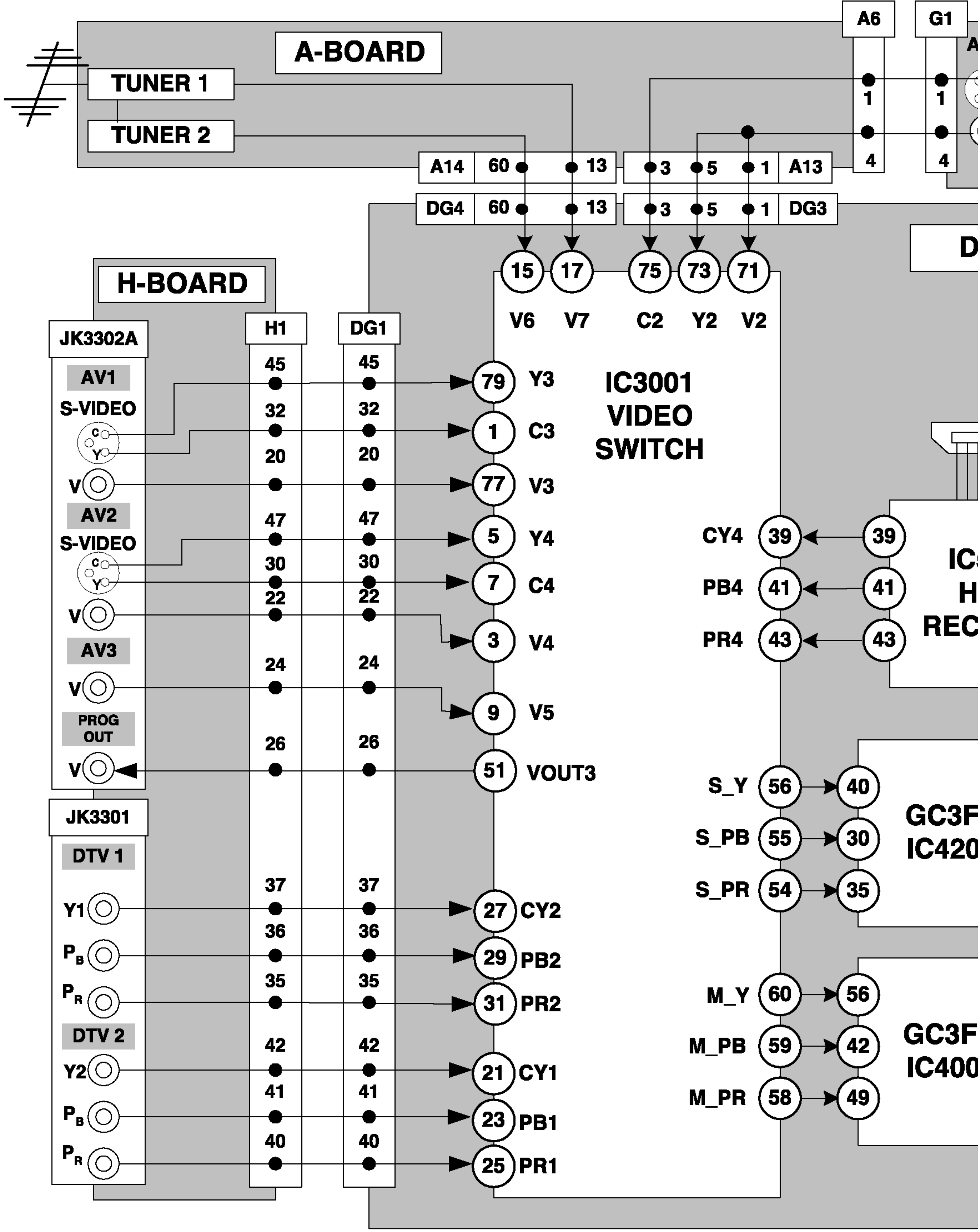

J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
LR1
140V
NC
VM
GND(VM)
12V(VM)
NC
GND(PACHI)
12V
R
GND(SYGNAL)
OFF_MUTE
HEATER6.3V
NC
210V
14 13 12 11 10 9 8 7 6 5 4 3 2 1
TP1
TP2
TP5
TP6
TP7
TP8
TP9
C2
L904
140V
12V
L301
C304
250V
0.1u
C306
250V
10u
C1
R315
56k
R312
2.7k
7W
L302
D306
D307
1/2W
Q353
R316
820
L303
C305
50V
47u
R311
47
C307
0.01u
50V
R306
1k
BLACK 4.0Vdc
B-W 4.2Vpp
R313
150
JS15
Q302
R302
JW
L305
JW
C302
R303
220
R305
220
R307
22
JS14
C1
C2
TNP
R308
330k
Q301
R304
330k
R301
390k
1/2W
R310
5.6k
Q303
D301
C308
50V
22u
D302
D303
R317
3.3k
JS022
JS023
C309
250V
10u
12V
C912
50V
22u
R913
1.5k
Q906
C913
50V
0.01u
R918
4.7k
R921
150
Q908
R912
100
Q903
R919
4.7k
R920
680
R915
22
7V
R917
10
Q905
R916
22
7V
Q907
R914
1.5k
C903
50V
0.01u
JS16
C3
C
GND3(VM)
GND(VM)
VM AMP
R90
1.2
C90
200
0.0
R90
10k
R90
68k
R90
1.2



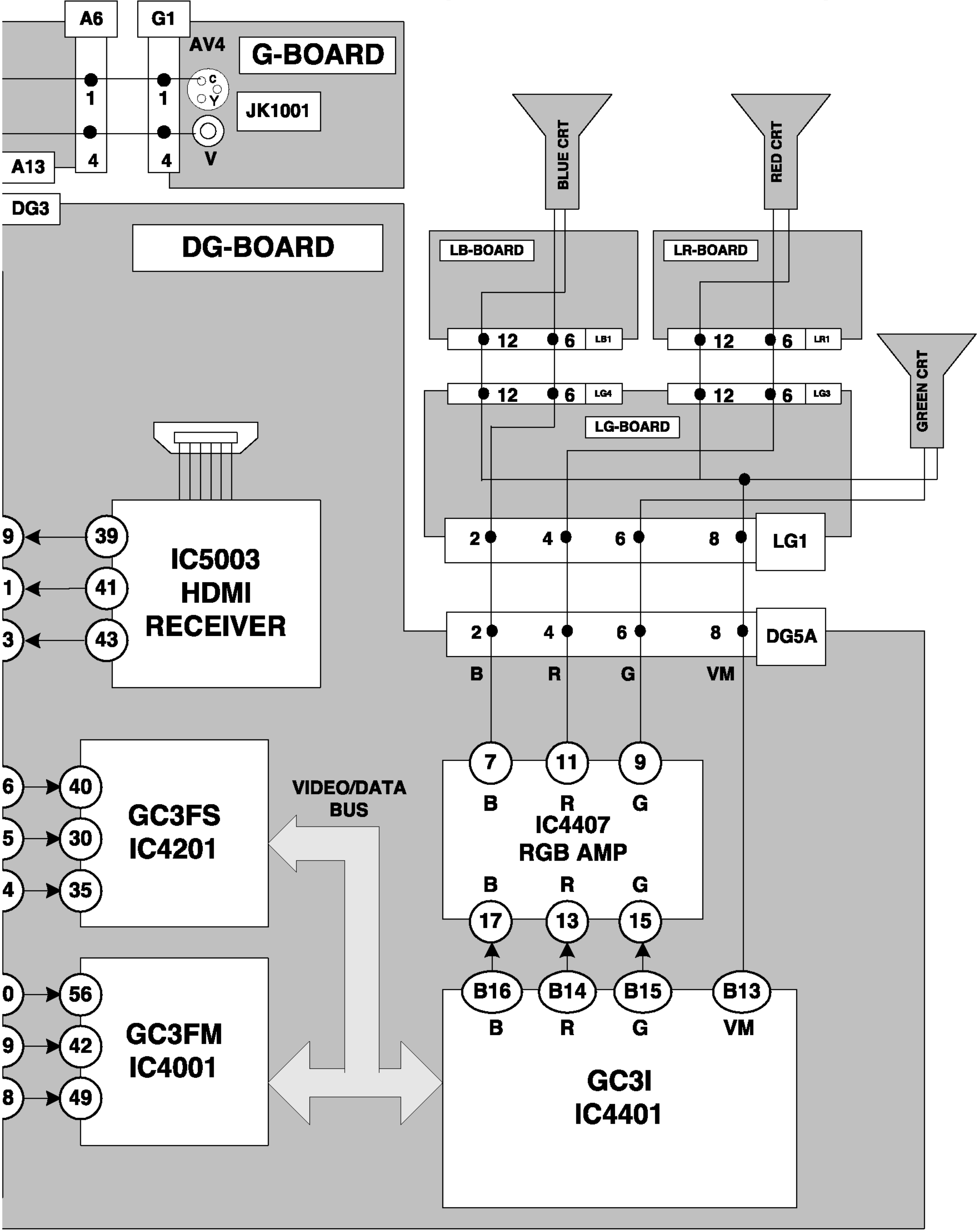
TNP2AA162 LR
CRT (RED)
G1 G2
H
HG
K
CRT01
TPLR1
220V
C2
9 8 7 6
10 G1 K H
G2
11 G1 5
12 G1 G1 4
1
FOCUS GAP GND
SC301
C2
(TO FBT)
FOCUS (TO FBT)
EHT
R315 56k
L302
R319 100 1/2W
Q354
D312
D313
R325 47k
L304
R327 330 1/2W
C312 C2
C313 1000p 500V
R328 100k 1/2W
C2
1000V
LR2
GND2 (PACHI)
C2
LR3
D306
D307
R320 33 1/2W
R321 33 1/2W
D314
D315
C1
R316 820
L303
Q355
R322 100 1/2W
C1
TPLR2
C1
GND1 (SYGNAL)
1/2W
D304
R329 10k
G1 : GND ⟶ 210V
140V
R301 390k 1/2W
R908 47 1/2W
C908 16V 100u
C916 250V 0.1u
C910 160V 10u
C3
R901 1.2k
R909 4.7 1/2W
C902 200V 0.01u
7V
CENTRE 139V
Q901
12V
R902 10k
130V
Q957
Q906
C906 200V 0.01u
C3
D902
L901
R903 68k
R915 22
70V
TP10
R911 220 3W
TP11
3 2 1
2
1
VM
TLHX015 2.5uH
LR4
R917 10
C907 160V 10u
C3
C911 250V 0.1u
C3
R904 68k
L902
L903
D973
C3
R916 22
7V
10V
Q958
Q907
C904 0.01u 50V
C3
R905 10k
C903 50V 0.01u
CENTRE 1V
Q904
R910 4.7
R906 1.2k
R907 47 1/2W
C909 16V 100u
C3
VM AMP
J I H G F E D C B A
1 2 3 4 5 6 7 8


J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
TPLR2
GND1
C307
R311
R305
E
B
C
Q353
C305
R303
TEAMX5
94V-0
R306
C302
R314
R318
R309
R313
R307
Q302
Q301
Q304
Q303
D302
C308
R310
D301
R317
C309
R308
R301
D303
SC301
TP9
210V
TP6
12V
TP8
HEATER
TP7
TP2
VM
TP5
TP1
140V
LR1
LR2
R329
D304
1
14
R316
L303
R321
Q355
R322
D308
Q305
R304
C303
R314
L301
R327
TPLR1
R312
R315
D307
D306
L302
R320
C306
C304
R319
Q354
D312
D313
D314
L304
R325
D315
D973
LR4
C916
D902
TP11
L903
R911
C910
TP10
L902
LR3
C312
K
H
G1
G2
H.V.
DANGER
TNP2AA162
SEE REVERSE FOR ORDER NO.
①LR
PbF
R920
C912
Q908
R921
C913
R918
R919
R913
L904
C313
R912
Q903
Q906
Q905
R914
R917
R915
R916
Q907
R328
C908
R908
R909
L901
Q957
R901
Q901
C902
C906
C907
C911
Q958
C904
R904
C909
R905
R907
R903
R902
Q904
R910
C903
R906

Video signal path block diagram


A-BOARD
TUNER 1
TUNER 2
A6
G1
A14
60
13
3
5
1
A13
4
DG4
DG3
H-BOARD
JK3302A
AV1
S-VIDEO
C
Y
V
AV2
S-VIDEO
AV3
PROG OUT
JK3301
DTV 1
Y1
P_B
P_R
DTV 2
Y2
H1
DG1
45
32
20
47
30
22
24
26
37
36
35
42
41
40
15
17
75
73
71
V6
V7
C2
Y2
V2
IC3001
VIDEO
SWITCH
79 Y3
1 C3
77 V3
5 Y4
7 C4
3 V4
9 V5
51 VOUT3
27 CY2
29 PB2
31 PR2
21 CY1
23 PB1
25 PR1
CY4 39
PB4 41
PR4 43
39
41
43
IC
H
REC
S_Y 56
S_PB 55
S_PR 54
40
30
35
GC3F
IC420
M_Y 60
M_PB 59
M_PR 58
56
42
49
GC3F
IC400
D

Video signal path block diagram


A6
G1
AV4
G-BOARD
C
Y
JK1001
V
1
1
4
4
A13
DG3
DG-BOARD
BLUE CRT
RED CRT
LB-BOARD
LR-BOARD
12
6
LB1
12
6
LR1
GREEN CRT
12
6
LG4
12
6
LG3
LG-BOARD
9
39
1
41
3
43
IC5003
HDMI
RECEIVER
2
4
6
8
LG1
2
4
6
8
DG5A
B
R
G
VM
6
40
5
30
4
35
GC3FS
IC4201
VIDEO/DATA
BUS
7
11
9
B
R
G
IC4407
RGB AMP
B
R
G
17
13
15
0
56
9
42
8
49
GC3FM
IC4001
B16
B14
B15
B13
B
R
G
VM
GC3I
IC4401

A - BOARD - TNP2AH058

IC1302	
1	0.00
2	0.00
3	0.00
4	0.00
5	2.30
6	2.60
7	0.00
8	3.30

IC1303	
1	0.00
2	0.00
3	0.00
4	0.00
5	4.90
6	4.90
7	4.90
8	4.90

IC2201			
1	1.60	13	2.80
2	2.20	14	2.20
3	2.20	15	2.50
4	2.30	16	3.50
5	2.40	17	0.00
6	0.07	18	3.20
7	5.00	19	3.40
8	2.50	20	0.00
9	2.60	21	2.20
10	0.80	22	2.20
11	2.30	23	2.20
12	2.50	24	2.20

IC2301			
1	-23.00	14	-21.60
2	-23.00	15	0.00
3	0.30	16	-5.50
4	22.10	17	0.00
5	9.60	18	0.00
6	5.00	19	0.00
7	0.00	20	0.00
8	2.60	21	9.50
9	0.00	22	22.10
10	0.00	23	0.20
11	0.00	24	-23.00
12	5.30	25	-12.50
13	0.00		

IC2401			
1	4.40	16	8.90
2	4.50	17	4.70
3	4.50	18	0.00
4	4.50	19	4.30
5	4.50	20	4.10
6	4.50	21	4.50
7	4.50	22	4.50
8	4.50	23	4.50
9	1.60	24	4.50
10	4.50	25	4.50
11	1.60	26	4.50
12	1.60	27	4.50
13	4.90	28	4.50
14	4.90	29	4.50
15	0.00	30	4.40

IC2303	
1	4.37
2	4.37
3	4.37
4	GND
5	4.37
6	4.37
7	4.37
8	4.77

IC872	
1	19.40
2	9.01
3	0.00
4	1.30
5	N.C.

IC874	
1	19.40
2	5.10
3	0.00
4	1.30
5	N.C.

IC875	
1	19.40
2	3.36
3	0.00
4	1.30
5	N.C.

IC876	
1	19.40
2	2.60
3	0.00
4	1.30
5	N.C.

IC877	
1	19.40
2	1.78
3	0.00
4	1.30
5	N.C.

A - BOARD - TNP2AH058

	Q2301	Q2302	Q2303	Q2304	Q2305	Q2306	Q2307
B	-0.02	19.60	0.02	14.16	0.00	0.00	-0.03
C	5.05	-0.02	19.60	13.57	-0.02	0.00	0.00
E	0.00	13.57	0.00	14.16	-0.04	-0.04	0.00

	Q2308	Q2309	Q882	Q883	Q2451	Q2452
B	0.70	0.00	6.49	4.36	4.54	4.54
C	0.00	5.04	0.00	0.05	9.02	9.02
E	0.00	0.00	6.47	0.00	3.90	3.90

D - BOARD - TNP2AH059

IC1501	
1	. . . .10.80
2	. . . . .0.00
3	. . . . .0.00
4	. . . . .0.00
5	. . . . .2.40
6	. . . . .2.40
7	. . . . .1.40
8	. . . .12.00

IC451	
1	. . . . .0.00
2	. . . .17.30
3	. . . -17.00
4	. . . -18.50
5	. . . . -0.10
6	. . . .17.10
7	. . . . .0.00

IC701	
1	. . . . .0.20
2	. . . . .5.30
3	. . . . .4.70
4	. . . . .0.00
5	. . . . .1.60
6	. . . . .0.70
7	. . . . .9.50
8	. . . .12.00

IC7001			
1	. . . . . 0.00	10	. . . .19.30
2	. . . . . 0.00	11	. . . . .0.00
3	. . . -19.40	12	. . . -20.50
4	. . . -20.50	13	. . . . .0.00
5	. . . . 19.30	14	. . . . .0.00
6	. . . . -0.30	15	. . . . -0.20
7	. . . . -0.30	16	. . . . -0.20
8	. . . -20.40	17	. . . -20.50
9	. . . . -0.30	18	. . . . .0.00

IC7002			
1	. . . . . 0.00	10	. . . .19.30
2	. . . . . 0.00	11	. . . . -0.40
3	. . . -19.40	12	. . . . -0.40
4	. . . -20.50	13	. . . . .0.20
5	. . . . 19.30	14	. . . . .0.00
6	. . . . -0.10	15	. . . . -0.20
7	. . . . -0.10	16	. . . . -0.00
8	. . . -20.40	17	. . . -20.50
9	. . . . -0.10	18	. . . . .0.00

↓IC801	
1	. . . . . 1.40
2	. . . . . 0.40
3	. . . . . 0.00
4	. . . . . 0.00
5	. . . . . 0.00
6	. . . . . 5.70
7	. . . . 20.50
8	. . . . . 0.00
9	. . . . . 6.00

IC802	
1	. . . 139.40
2	. . . . 18.50
3	. . . . . 0.00

IC805	
1	. . . . 19.70
2	. . . . . 0.00
3	. . . . 12.00

IC811	
1	. . . . 19.50
2	. . . . 18.50
3	↓ . . . 0.00
4	↓ . . . 5.90

	Q1503	Q1504	Q1505	Q406
B	9.80	12.00	6.10	-0.70
C	6.20	404.80	10.40	0.00
E	10.40	11.40	6.60	0.00

	Q501
G	5.30
D	16.50
S	0.00

	Q509	Q510	Q512
B	29.10	31.60	4.40
C	138.90	138.90	8.30
E	31.60	31.10	3.80

	Q513	Q551	Q606
B	0.30	-0.20	0.00
C	5.30	-98.90	9.80
E	0.00	0.00	0.00

	Q701
G	9.50
D	27.00
S	0.00

	Q7006	Q7007	Q7060	Q7061
B	-20.50	-20.50	19.30	-20.50
C	-19.40	-19.40	0.00	19.30
E	-20.50	-20.50	19.50	-20.70

	Q801
G	5.50
S	0.01
D	43.30

	Q802	Q803	Q854
B	0.70	20.50	138.90
C	0.20	0.00	0.00
E	0.00	20.50	139.20

LG - BOARD - TNP2AA160

IC880
1 .... 18.30
2 ..... 0.00
3 .... 12.00

	Q331	Q373	Q374	Q375	Q934	Q935	Q936	Q937
B	4.10	12.00	172.10	171.00	0.00	0.00	0.70	0.00
C	11.60	170.70	218.80	0.40	0.00	19.30	19.30	0.00
E	3.80	11.60	171.60	171.60	0.70	0.00	0.40	0.40

	Q938	Q941	Q951	Q952	Q953	Q955	Q956
B	137.90	1.00	-0.90	-1.10	-1.10	129.70	9.60
C	130.10	9.00	19.30	19.30	19.30	70.00	70.00
E	138.60	0.30	0.00	0.00	0.00	130.10	9.00

LB - BOARD - TNP2AA161

	Q361	Q362	Q363	Q364	Q365	Q366	Q368	Q393	Q394
B	5.20	4.50	3.90	3.90	5.90	5.10	0.00	12.00	176.10
C	12.00	12.00	11.50	0.00	12.00	12.00	0.00	174.80	218.00
E	4.50	3.90	3.70	3.50	5.30	4.50	0.40	11.60	175.70

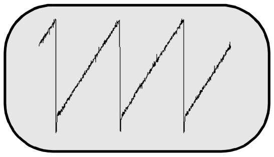
	Q395	Q959	Q960	Q961	Q964	Q965	Q966	Q967	Q968
B	174.60	129.40	9.60	137.90	1.00	0.00	0.00	0.70	0.00
C	0.40	71.00	71.00	130.00	9.00	0.00	19.30	19.30	0.00
E	175.40	130.00	9.10	138.50	0.40	0.70	0.00	0.40	0.40

LR - BOARD - TNP2AA162

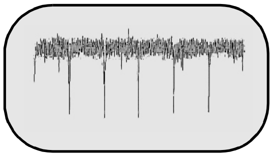
	Q301	Q302	Q303	Q353	Q354	Q355	Q901
B	0.00	0.60	0.60	12.00	176.30	175.00	137.90
C	215.00	0.00	0.00	174.70	218.30	0.00	130.10
E	0.00	0.00	0.00	11.50	175.90	175.60	138.50

	Q903	Q904	Q905	Q906	Q907	Q957	Q958
B	0.10	1.00	0.10	0.70	0.00	129.40	9.43
C	0.00	8.90	19.30	19.30	0.00	69.60	69.60
E	0.80	0.30	0.00	0.40	0.40	130.00	8.86

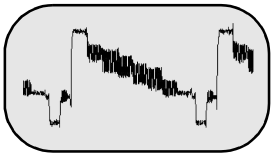
A-Board TNP2AH058



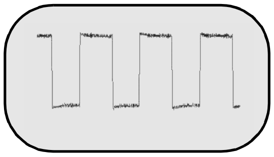
① **2.04 Vp-p**
A4 PIN 1 (V-SAW)



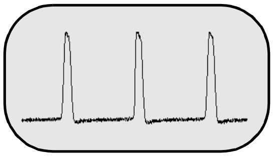
② **.292 Vp-p**
A4 PIN 4 (EHT ADJ)



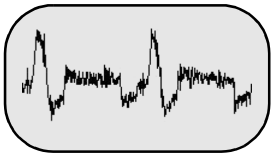
③ **1.08 Vp-p**
A14 PIN 13 (MAIN VIDEO)



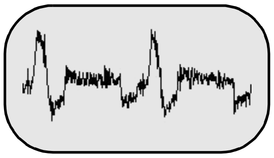
④ **3.56Vp-p**
A2 PIN 3 (H-DRV)



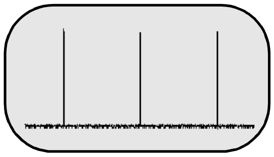
⑤ **5.65 Vp-p**
A2 PIN 5 (FBP)



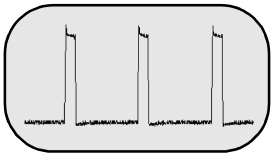
⑥ **0.178 Vp-p**
A2 PIN 11 (SOS3 CONV)



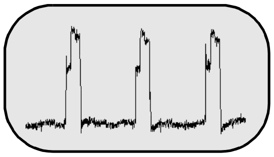
⑦ **0.176 Vp-p**
A2 PIN 15 (SOS)



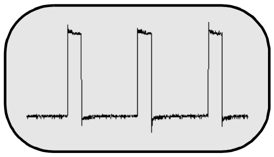
⑧ **3.36 Vp-p**
A3 PIN 9 (VD TO CONV)



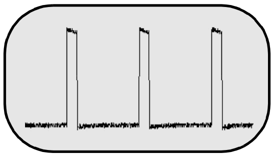
⑨ **3.36 Vp-p**
A3 PIN 11 (FBP TO CONV)



⑩ **0.472 Vp-p**
A3 PIN 13 (H-SYNC)

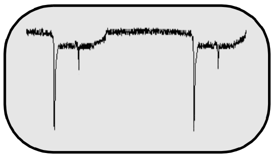


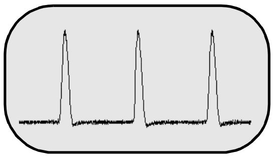
⑪ **3.52 Vp-p**
A3 PIN 15 (HBLK)

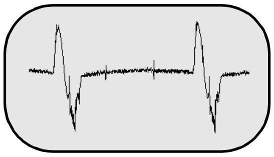


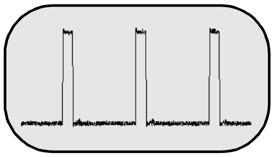
⑫ **3.6 Vp-p**
A3 PIN 16 (EW)

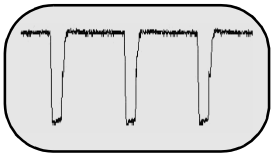
D-Board TNP2AH059

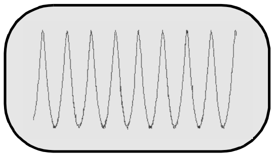

⑬ **12.6 Vp-p**
Q551-B

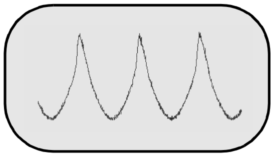

⑭ **1.56 kVp-p**
Q551-C

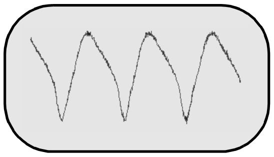

⑮ **0.65 Vp-p**
IC701 PIN 3

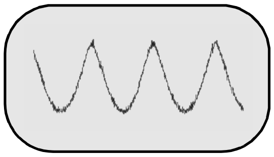

⑯ **3.60Vp-p**
IC701 PIN 6

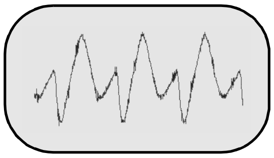

⑰ **13.4 Vp-p**
IC701 PIN 7

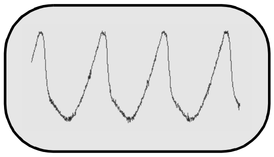

⑱ **2.28 Vp-p**
D23 PIN 10 (DAF)

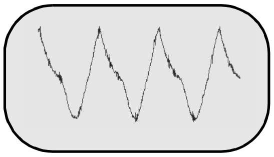

⑲ **2.02 Vp-p**
D22 PIN 2 BV


⑳ **2.04 Vp-p**
D22 PIN 3 (BH)

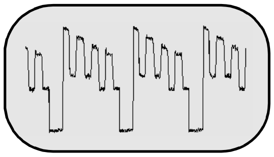

㉑ **1.44 Vp-p**
D22 PIN 4 (GV)

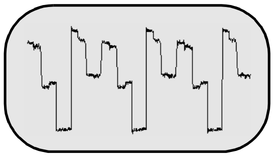

㉒ **.824 Vp-p**
D22 PIN 5 (GH)

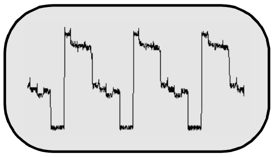

㉓ **1.94 Vp-p**
D22 PIN 6 (RV)

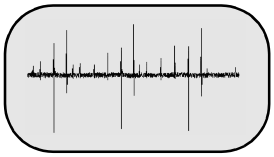

㉔ **1.17 Vp-p**
D22 PIN 7 (RH)

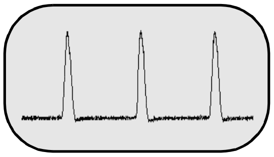
LG-Board TNP2AA160


㉕ **6.08 Vp-p**
TP17 (BLUE SIGNAL)

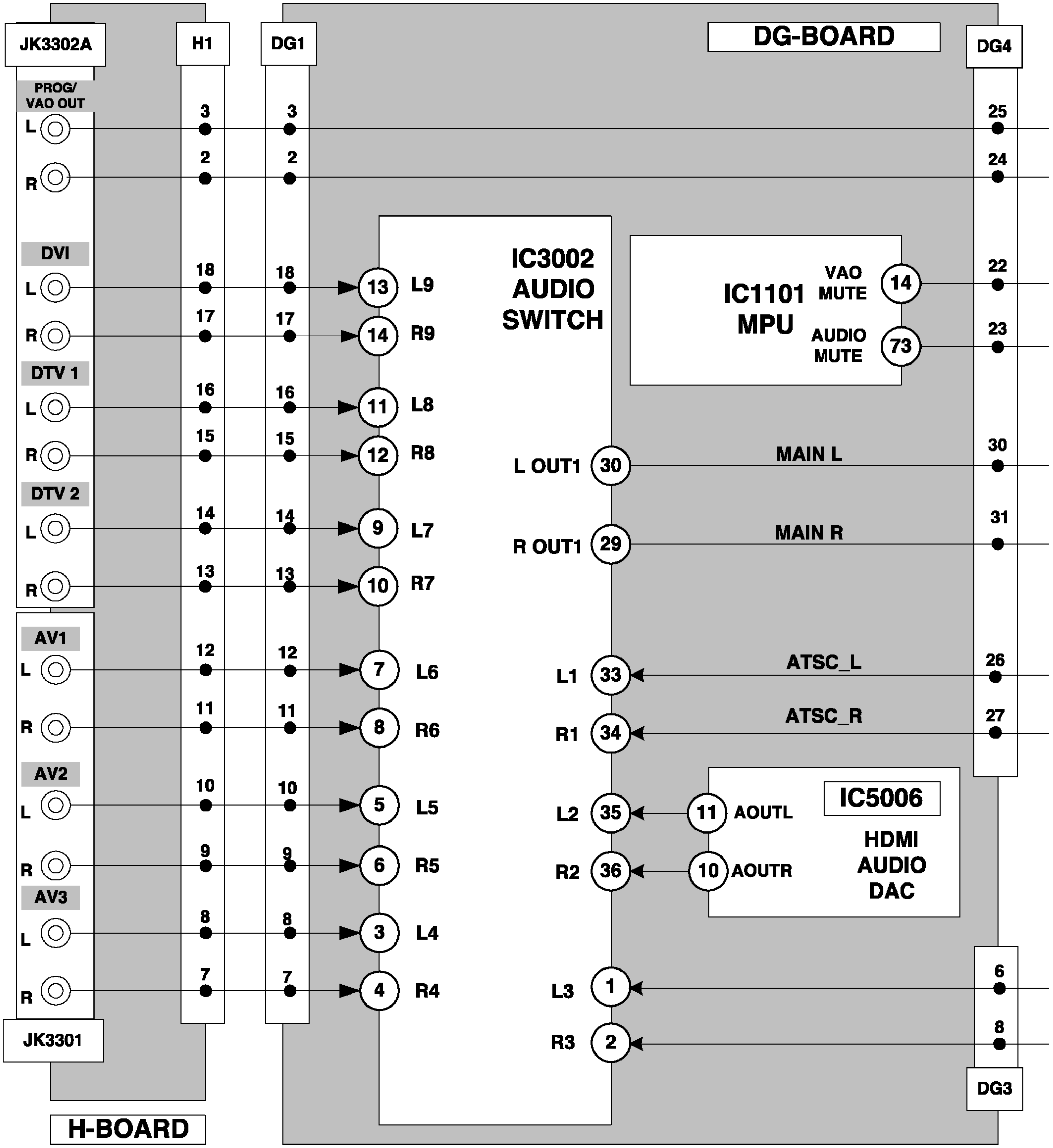

㉖ **5.60 Vp-p**
TP18 (RED SIGNAL)


㉗ **6.08 Vp-p**
TP19 (GREEN SIGNAL)

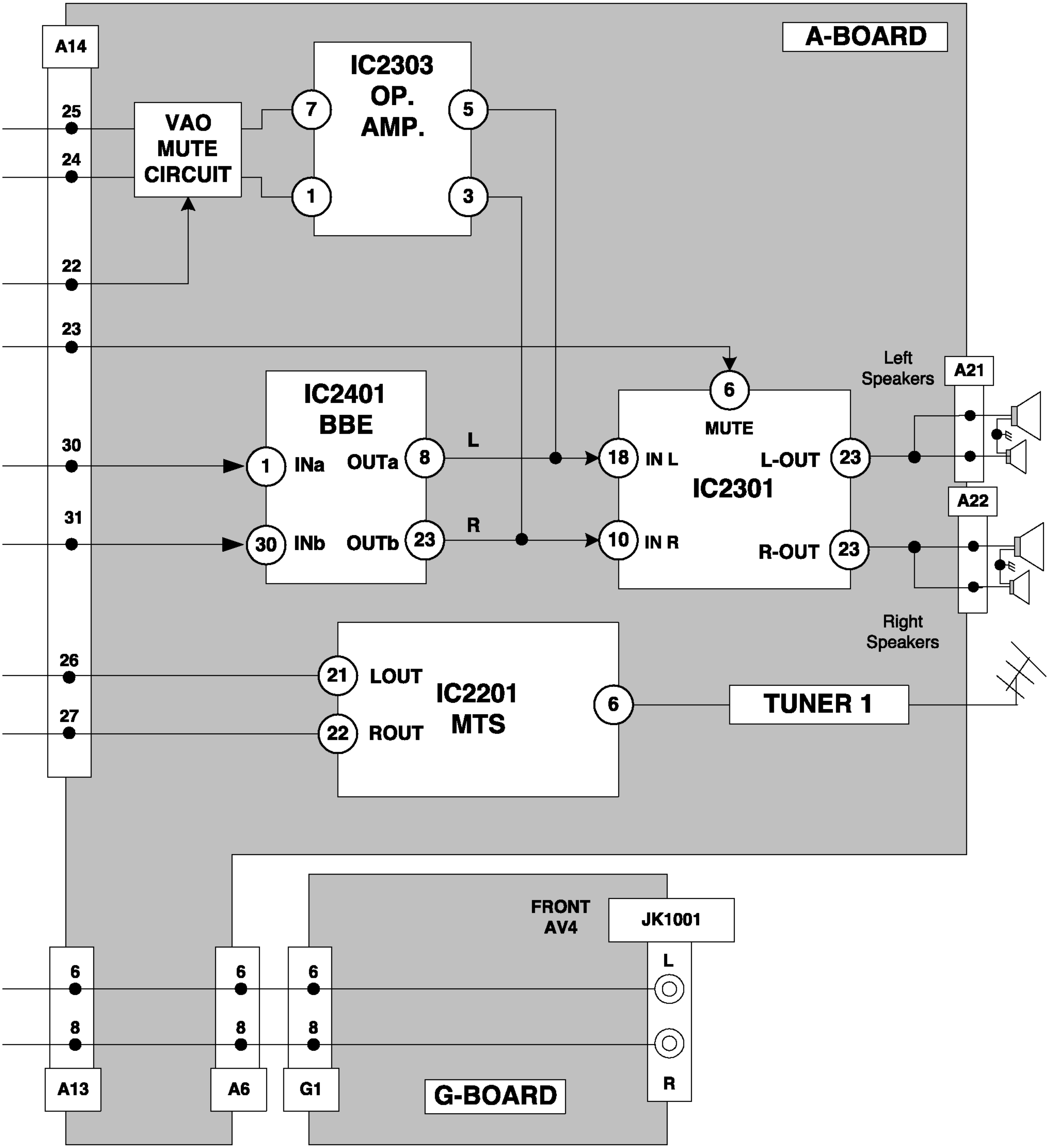

㉘ **2.74 Vp-p**
TP12 (VM SIGNAL)

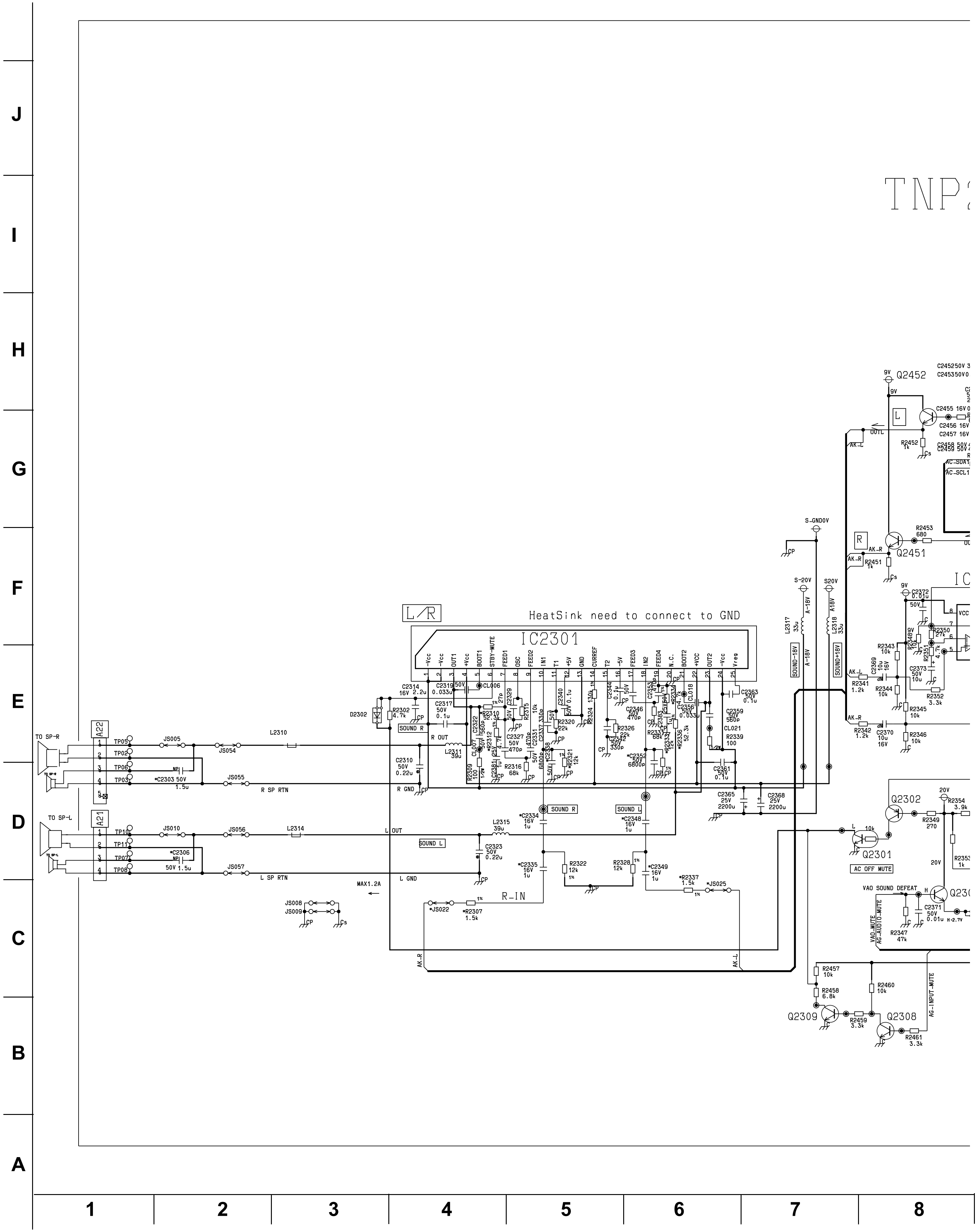

㉙ **28.4 Vp-p**
TP22 (HEATER)

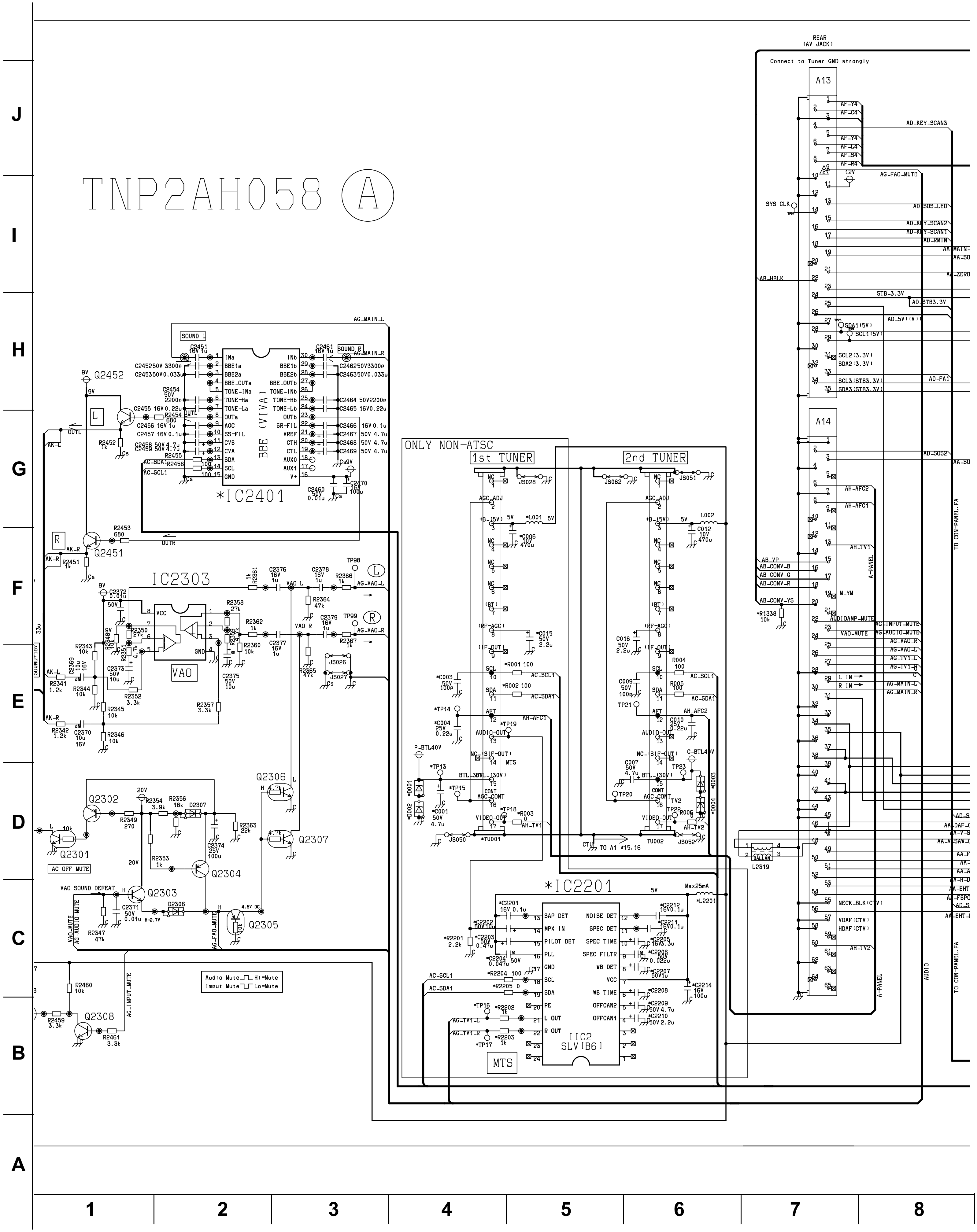
Audio signal path block diagram


JK3302A
H1
DG1
DG-BOARD
DG4
PROG/ VAO OUT
L
R
DVI
DTV 1
DTV 2
AV1
AV2
AV3
JK3301
H-BOARD
IC3002 AUDIO SWITCH
L9
R9
L8
R8
L7
R7
L6
R6
L5
R5
L4
R4
L OUT1
R OUT1
L1
R1
L2
R2
L3
R3
IC1101 MPU
VAO MUTE
AUDIO MUTE
MAIN L
MAIN R
ATSC_L
ATSC_R
IC5006
HDMI AUDIO DAC
AOUTL
AOUTR
DG3

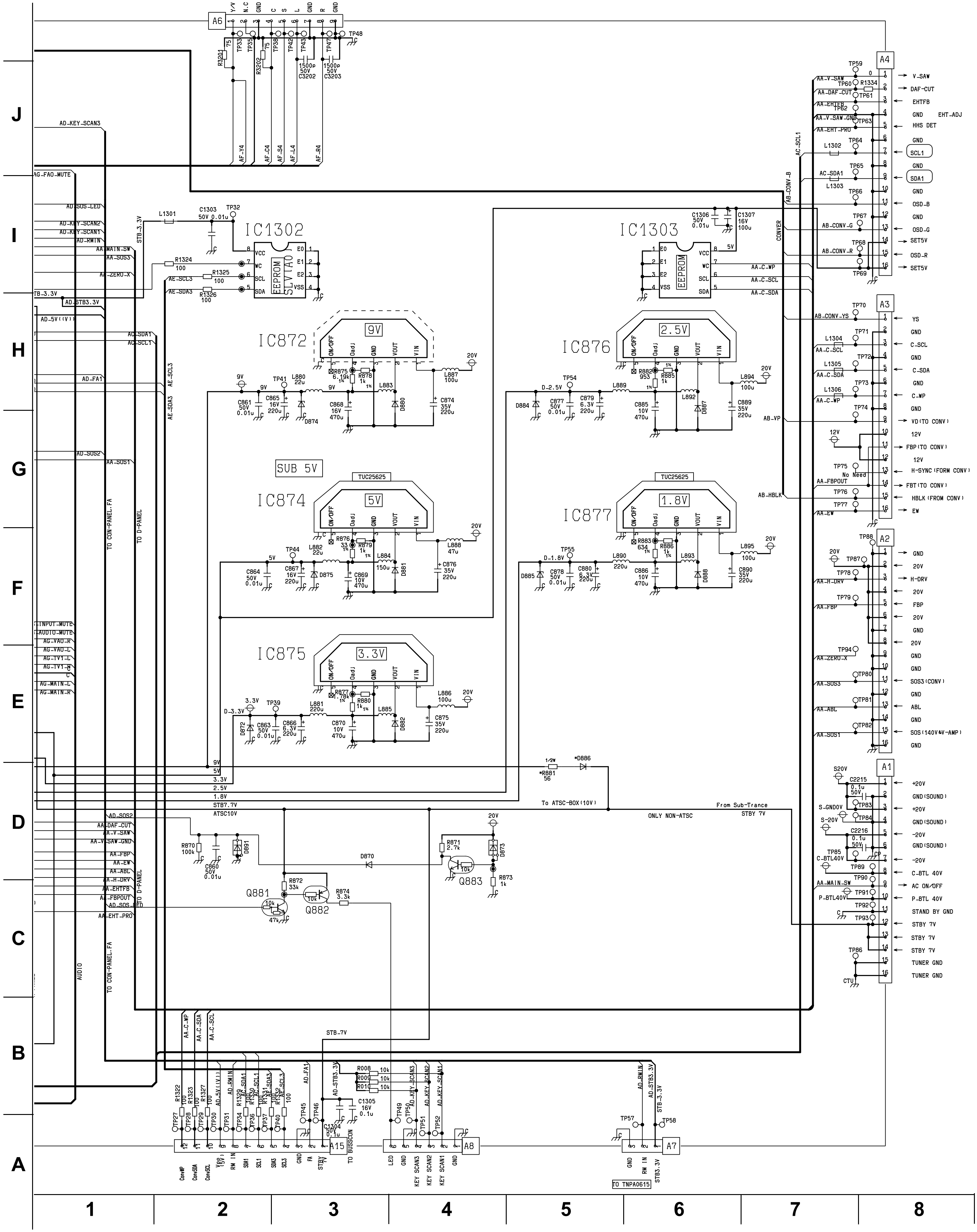
Audio signal path block diagram

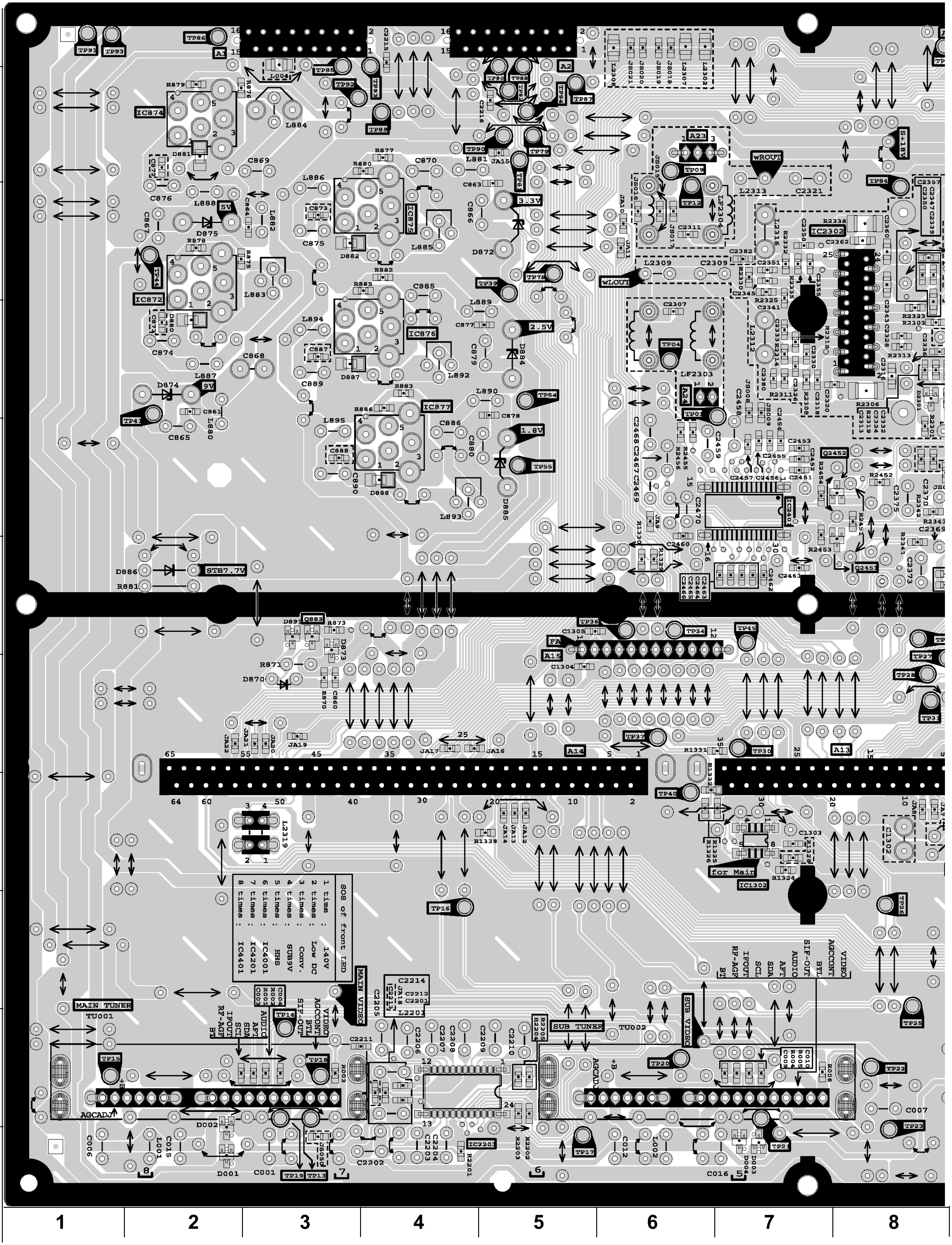

A-BOARD
A14
25
24
22
23
30
31
26
27
VAO MUTE CIRCUIT
IC2303 OP. AMP.
7
1
5
3
IC2401 BBE
1
INa
30
INb
OUTa
8
OUTb
23
L
R
IC2301
6
MUTE
18
IN L
10
IN R
L-OUT
23
R-OUT
23
Left Speakers
A21
A22
Right Speakers
IC2201 MTS
21
LOUT
22
ROUT
6
TUNER 1
FRONT AV4
JK1001
L
R
6
8
6
8
6
8
A13
A6
G1
G-BOARD

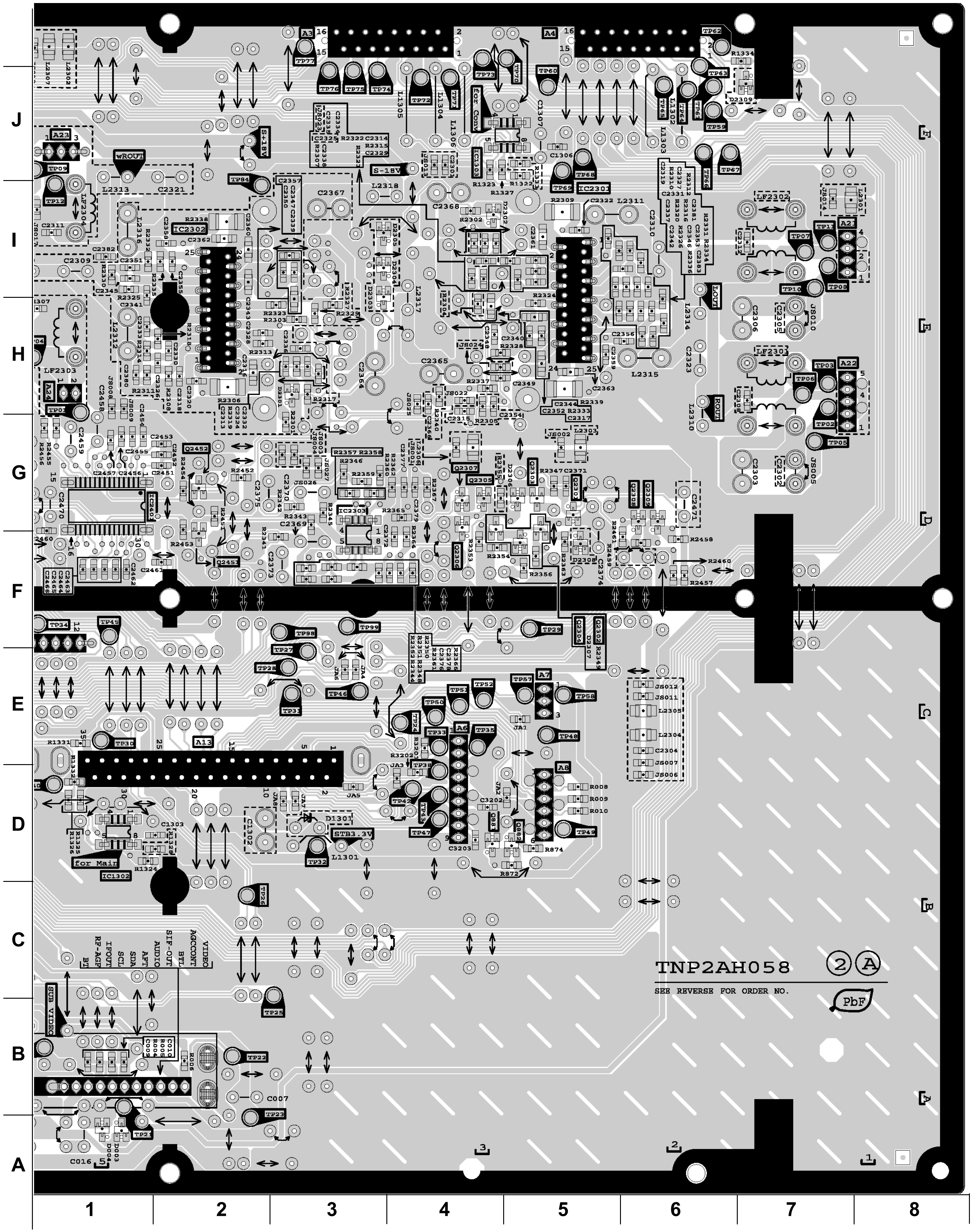

J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
TNP2
L/R
HeatSink need to connect to GND
IC2301
-Vcc
OUT1
+Vcc
BOOT1
STBY-MUTE
FEED1
OSC
FEED2
IN1
T1
+5V
GND
CURREF
T2
-5V
FEED3
FEED4
IN2
N.C.
BOOT2
+VCC
OUT2
Vreg
TO SP-R
TO SP-L
A22
A21
TP05
TP02
TP06
TP03
TP10
TP11
TP07
TP08
JS005
JS054
JS055
JS010
JS056
JS057
JS008
JS009
*JS022
*JS025
L2310
L2311 39u
L2314
L2315 39u
L2317 33u
L2318 33u
R OUT
R GND
R SP RTN
L OUT
L GND
L SP RTN
SOUND R
SOUND L
R-IN
MAX1.2A
D2302
R2302 4.7k
*C2303 50V 1.5u
*C2306 50V 1.5u
C2310 50V 0.22u
C2314 16V 2.2u
C2319 50V 0.033u
CL006
C2317 50V 0.1u
C2322 560p
*R2310 27p
*R2312
C2329
R2315 10k
C2327 50V 470p
C2331 50V 4700p
C2337 330p
C2340 50V 0.1u
R2320 22k
R2321 12k
R2324 130k
R2316 68k
R2309 100
CL007
C2323 50V 0.22u
*C2334 16V 1u
*C2335 16V 1u
R2322 12k
R2328 12k
*C2348 16V 1u
*C2349 16V 1u
*R2337 1.5k
*R2307 1.5k
C2344 0.1u
C2346 50V 470p
R2326 22k
C2342 50V 330p
*C2352 50V 6800p
R2333 68k
*R2336 52.3k
C2353
CL018
C2356 50V 0.033u
C2359 50V 560p
CL021
R2339 100
C2361 50V 0.1u
C2363 50V 0.1u
C2365 25V 2200u
C2368 25V 2200u
S-GNDOV
S-20V
S20V
A-18V
A18V
SOUND-18V
SOUND+18V
AK-L
AK-R
OUTL
Q2452
Q2451
Q2302
Q2301
Q2309
Q2308
9V
20V
R2452 1k
R2451 1k
R2453 680
C2455 16V
C2456 16V
C2457 16V
C2458 50V
C2459 50V
C2452 50V
C2453 50V
AC-SDA1
AC-SCL1
C2372 0.01u 50V
VCC
R2343 10k
R2489 10k
R2350 27k
R2351 4.7k
C2369 10u 16V
C2373 50V 10u
R2341 1.2k
R2344 10k
R2352 3.3k
R2345 10k
R2342 1.2k
C2370 10u 16V
R2346 10k
R2354 3.9k
R2349 270
R2353 1k
AC OFF MUTE
VAO SOUND DEFEAT
VAO_MUTE
AG-AUDIO_MUTE
C2371 50V 0.01u
R2347 47k
R2457 10k
R2458 6.8k
R2460 10k
R2459 3.3k
R2461 3.3k
AG-INPUT_MUTE

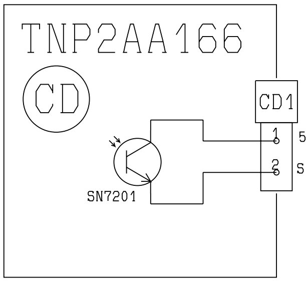

TNP2AH058 Ⓐ
REAR (AV JACK)
Connect to Tuner GND strongly
A13
A14
SOUND L
SOUND R
AG-MAIN-L
AG-MAIN-R
*IC2401
BBE (VIVA)
Q2451
Q2452
AK-L
AK-R
OUTL
OUTR
IC2303
VAO
AG-VAO-L
AG-VAO-R
TP98
TP99
Q2301
Q2302
Q2303
Q2304
Q2305
Q2306
Q2307
Q2308
AC OFF MUTE
VAO SOUND DEFEAT
VAO-MUTE
AG-AUDIO-MUTE
AG-FAO-MUTE
AG-INPUT-MUTE
Audio Mute Hi=Mute
Imput Mute Lo=Mute
ONLY NON-ATSC
1st TUNER
2nd TUNER
*TU001
TU002
TO A1 #15.16
*IC2201
IIC2 SLV[B6]
MTS
AC-SCL1
AC-SDA1
AH-AFC1
AH-AFC2
AH-TV1
AH-TV2
AG-TV1-L
AG-TV1-R
L2319
BALLAN
AD-KEY-SCAN3
AD-SOS-LED
AD-KEY-SCAN2
AD-KEY-SCAN1
AD-RMIN
AB-HBLK
STB-3.3V
AD-STB3.3V
AD-5V(V)
SYS CLK
SDA1(5V)
SCL1(5V)
SCL2(3.3V)
SDA2(3.3V)
SCL3(STB3.3V)
SDA3(STB3.3V)
AD-FA1
AD-SOS2
AB-VP
AB-CONV-B
AB-CONV-G
AB-CONV-R
AB-CONV-YS
AUDIOAMP-MUTE
VAO-MUTE
L IN
R IN
NECK-BLK(CTV)
VDAF(CTV)
HDAF(CTV)
A-PANEL
AUDIO
TO CON-PANEL.FA

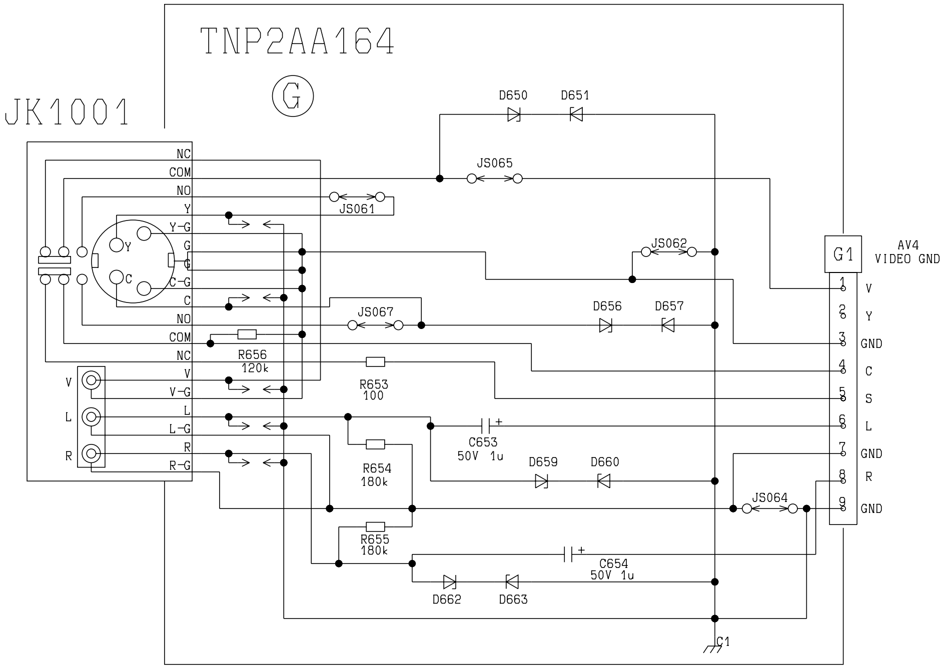
A-BOARD **2 of 3** **TNP2AH058** **PT-53X54J**

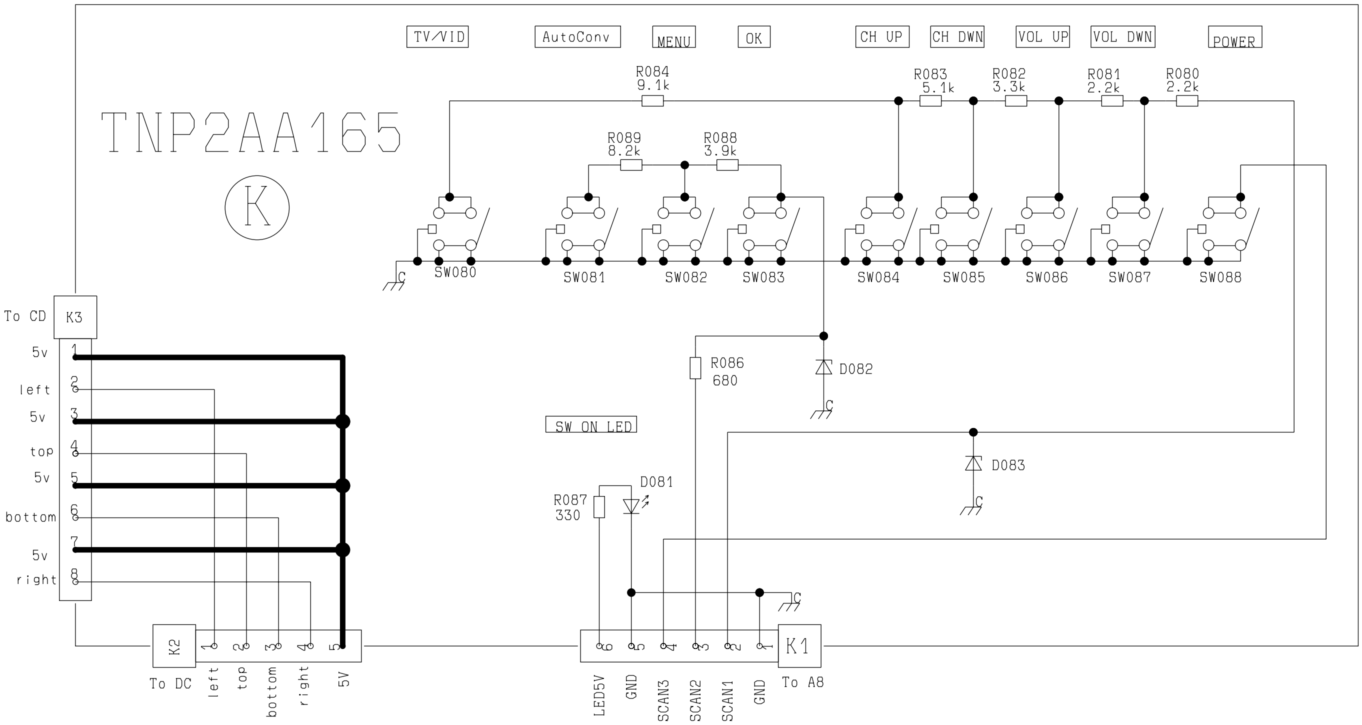

A6
Y/V
N.C
GND
C
S
L
GND
R
GND
TP48
R3201 75
R3202 75
1500p 50V C3202
1500p 50V C3203
AF-Y4
AF-C4
AF-S4
AF-L4
AF-R4
AD-KEY-SCAN3
AG-FAO-MUTE
AD-SOS-LED
AD-KEY-SCAN2
AD-KEY-SCAN1
AD-RMIN
AA-MAIN-SW
AA-SOS3
AA-ZERO-X
STB-3.3V
AD-STB3.3V
AD-5V((V))
AD-SDA1
AD-SCL1
AD-FA1
AD-SOS2
AA-SOS1
L1301
C1303 50V 0.01u
TP32
IC1302
EEPROM
VCC
WC
SCL
VSS
SDA
E0
E1
E2
R1324 100
R1325 100
R1326 100
AE-SCL3
AE-SDA3
IC1303
C1306 50V 0.01u
C1307 16V 100u
5V
AA-C-WP
AA-C-SCL
AA-C-SDA
IC872
9V
ON/OFF
Oadj
GND
VOUT
VIN
R875 6.19k
R878 1k
L880 22u
L883
L887 100u
C861 50V 0.01u
C865 16V 220u
C868 16V 470u
C874 35V 220u
D874
D880
TP41
20V
IC876
2.5V
R882 953
R885 1k
L889
L892
L894 100u
D884
C877 50V 0.01u
C879 6.3V 220u
C885 10V 470u
C889 35V 220u
D887
D-2.5V
TP54
SUB 5V
IC874
TUC25625
5V
R876 33
R879 1k
L882 22u
L884 150u
L888 47u
C864 50V 0.01u
C867 16V 220u
C869 10V 470u
C876 35V 220u
D875
D881
TP44
IC877
1.8V
R883 634
R886 1k
L890 220u
L893
L895 100u
D885
C878 50V 0.01u
C880 6.3V 220u
C886 10V 470u
C890 35V 220u
D888
D-1.8V
TP55
IC875
3.3V
R877 1.78k
R880 1k
L881 220u
L885
L886 100u
C863 50V 0.01u
C866 6.3V 220u
C870 10V 470u
C875 35V 220u
D872
D882
D-3.3V
TP39
9V
5V
3.3V
2.5V
1.8V
STB7.7V
ATSC10V
1/2W
R881 56
D886
To ATSC-BOX(10V)
ONLY NON-ATSC
From Sub-Trance
STBY 7V
R870 100k
C860 50V 0.01u
D891
D870
R871 2.7k
D873
R873 1k
Q883
R872 33k
Q881
10k
47k
Q882
R874 3.3k
AD-SOS2
AA-DAF-CUT
AA-V-SAW
AA-V-SAW-GND
AA-FBP
AA-EW
AA-ABL
AA-H-DRV
AA-EHTFB
AA-FBPOUT
AD-SOS-LED
AA-EHT-PRO
TO CON-PANEL.FA
TO D-PANEL
AUDIO
AG-INPUT-MUTE
AG-AUDIO-MUTE
AG-VAO-R
AG-VAO-L
AG-TV1-L
AG-TV1-R
AG-MAIN-L
AG-MAIN-R
A4
V-SAW
DAF-CUT
EHTFB
GND EHT-ADJ
HHS DET
GND
SCL1
GND
SDA1
GND
OSD-B
GND
OSD-G
SET5V
OSD-R
SET5V
R1334
L1302
L1303
AC-SDA1
AC-SCL1
AB-CONV-B
AB-CONV-G
AB-CONV-R
CONVER
A3
YS
GND
C-SCL
GND
C-SDA
GND
C-WP
GND
VD(TO CONV)
12V
FBP(TO CONV)
12V
H-SYNC(FORM CONV)
FBT(TO CONV)
HBLK(FROM CONV)
EW
AB-CONV-YS
L1304
L1305
L1306
AB-VP
AB-HBLK
AA-FBPOUT
No Need
A2
GND
20V
H-DRV
20V
FBP
20V
GND
20V
GND
GND
SOS3(CONV)
GND
ABL
GND
SOS(140V&V-AMP)
GND
AA-H-DRV
AA-FBP
AA-ZERO-X
AA-SOS3
AA-ABL
AA-SOS1
A1
+20V
GND(SOUND)
+20V
GND(SOUND)
-20V
GND(SOUND)
-20V
C-BTL 40V
AC ON/OFF
P-BTL 40V
STAND BY GND
STBY 7V
STBY 7V
STBY 7V
TUNER GND
TUNER GND
C2215 0.1u 50V
C2216 0.1u 50V
S20V
S-GND0V
S-20V
C-BTL40V
P-BTL40V
AA-MAIN-SW
CTU
STB-7V
AA-C-WP
AA-C-SDA
AA-C-SCL
R1322 100
R1323 100
R1327 100
R1329 100
R1330 100
R1331 100
R1332 100
AD-5V((V))
AD-RMIN
AD-SDA1
AD-SCL1
AD-SDA3
AD-SCL3
AD-FA1
AD-STB3.3V
C1305 16V 0.1u
C1304 50V 0.1u
R008 10k
R009 10k
R010 10k
AD-KEY-SCAN3
AD-KEY-SCAN2
AD-KEY-SCAN1
A15
TO BUSSCON
ConvWP
ConvSDA
ConvSCL
Vcc 5V
RM IN
SDA1
SCL1
SDA3
SCL3
GND
FA
STBY
A8
LED
GND
KEY SCAN3
KEY SCAN2
KEY SCAN1
GND
A7
GND
RM IN
STB3.3V
TO TNPA0615
1
2
3
4
5
6
7
8
J
I
H
G
F
E
D
C
B
A

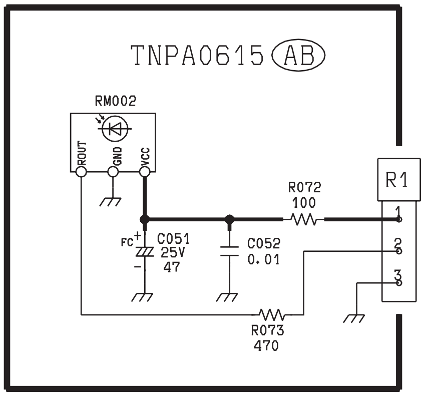

J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
SOS of front LED
1 time : 140V
2 times : Low DC
3 times : Conv.
4 times : SUB9V
5 times : HHS
6 times : IC4001
7 times : IC4201
8 times : IC4401
MAIN TUNER
TU001
SUB TUNER
TU002
MAIN VIDEO
SUB VIDEO
for Main
VIDEO
AGCCONT
BTL
SIF-OUT
AUDIO
AFT
SDA
SCL
IFOUT
RF-AGF
BT
AGCADJ
+B
STB7.7V
3.3V
2.5V
1.8V
5V
9V
S+18V
wROUT
wLOUT
IC874
IC875
IC872
IC876
IC877
IC2302
IC2401
IC1302
IC2201
Q883
Q2452
Q2451
A1
A2
A13
A14
A15
A23
A24
FA
TP01
TP04
TP09
TP12
TP13
TP14
TP15
TP16
TP17
TP18
TP19
TP20
TP21
TP22
TP23
TP25
TP27
TP28
TP34
TP36
TP37
TP39
TP40
TP41
TP44
TP45
TP54
TP55
TP78
TP79
TP80
TP83
TP84
TP85
TP86
TP87
TP88
TP89
TP90
TP91
TP92
TP93
TP94
LF2303
L2319

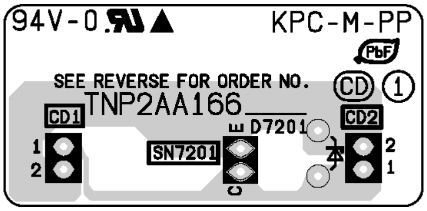

TNP2AH058
2 A
SEE REVERSE FOR ORDER NO.
PbF
A3
A4
A6
A7
A8
A13
A21
A22
A23
A24
IC2301
IC2302
IC2303
IC2401
IC1302
IC1303
S+18V
S-18V
wROUT
LOUT
ROUT
STB3.3V
for Main
For Conv
SUB VIDEO
VIDEO
AGCCONT
BTL
SIF-OUT
AUDIO
AFT
SDA
SCL
IFOUT
RF-AGC
BT
D1301
L1301
C1302
TP21
TP22
TP23
TP25
TP26
TP29
TP30
TP32
TP34
TP45
TP98
TP99
1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
H
I
J

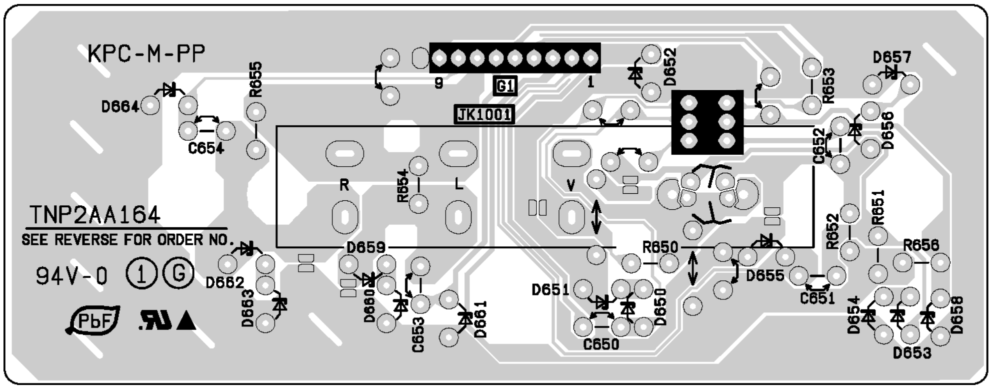

TNP2AA166
CD
CD1
1 5V
2 Sensor
SN7201

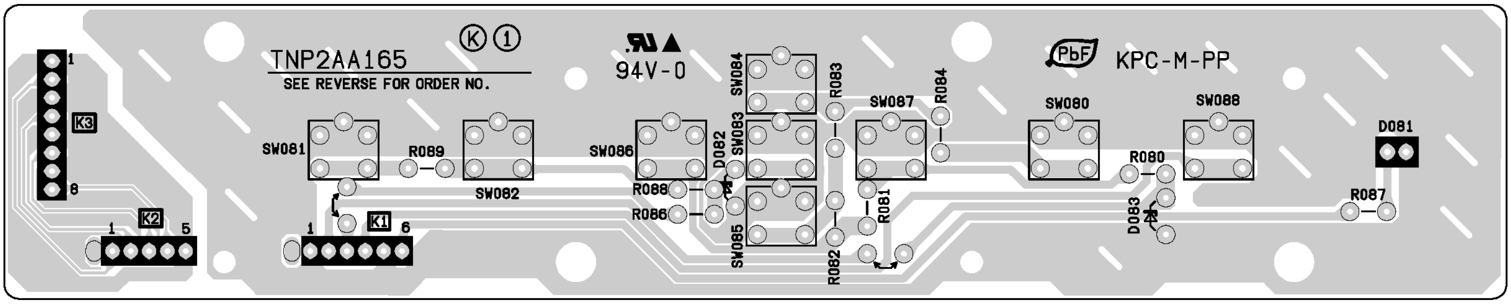

TNP2AA164
G
JK1001
NC
COM
NO
Y
Y-G
G
G
C-G
C
NO
COM
NC
V
V-G
L
L-G
R
R-G
V
L
R
Y
C
D650
D651
JS065
JS061
JS062
JS067
D656
D657
R656 120k
R653 100
C653 50V 1u
R654 180k
D659
D660
JS064
R655 180k
C654 50V 1u
D662
D663
C1
G1
AV4 VIDEO GND
1 V
2 Y
3 GND
4 C
5 S
6 L
7 GND
8 R
9 GND

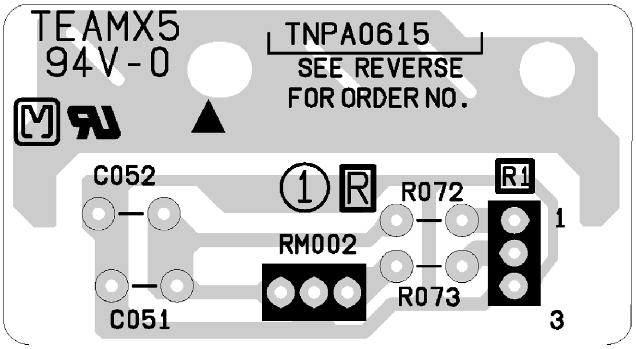

TV/VID
AutoConv
MENU
OK
CH UP
CH DWN
VOL UP
VOL DWN
POWER
R084 9.1k
R083 5.1k
R082 3.3k
R081 2.2k
R080 2.2k
R089 8.2k
R088 3.9k
TNP2AA165
K
SW080
SW081
SW082
SW083
SW084
SW085
SW086
SW087
SW088
To CD
K3
5v
left
5v
top
5v
bottom
5v
right
R086 680
D082
SW ON LED
D083
R087 330
D081
K2
To DC
left
top
bottom
right
5V
K1
To A8
LED5V
GND
KEY SCAN3
KEY SCAN2
KEY SCAN1
GND

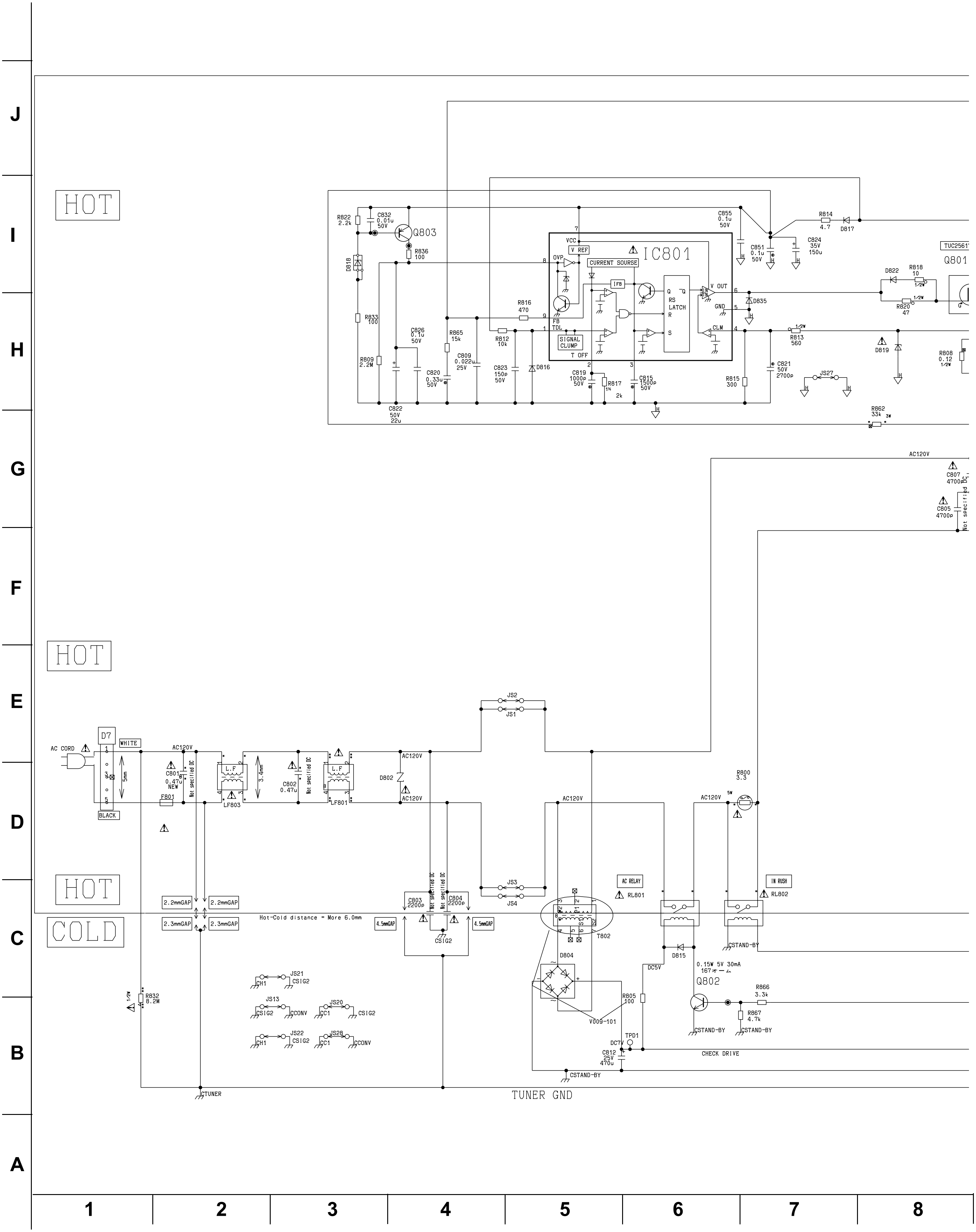

TNPA0615 AB
RM002
ROUT
GND
VCC
R072 100
R1
A7
1 STB 5V
2 RM IN
3 GND
FC
C051 25V 47
C052 0.01
R073 470

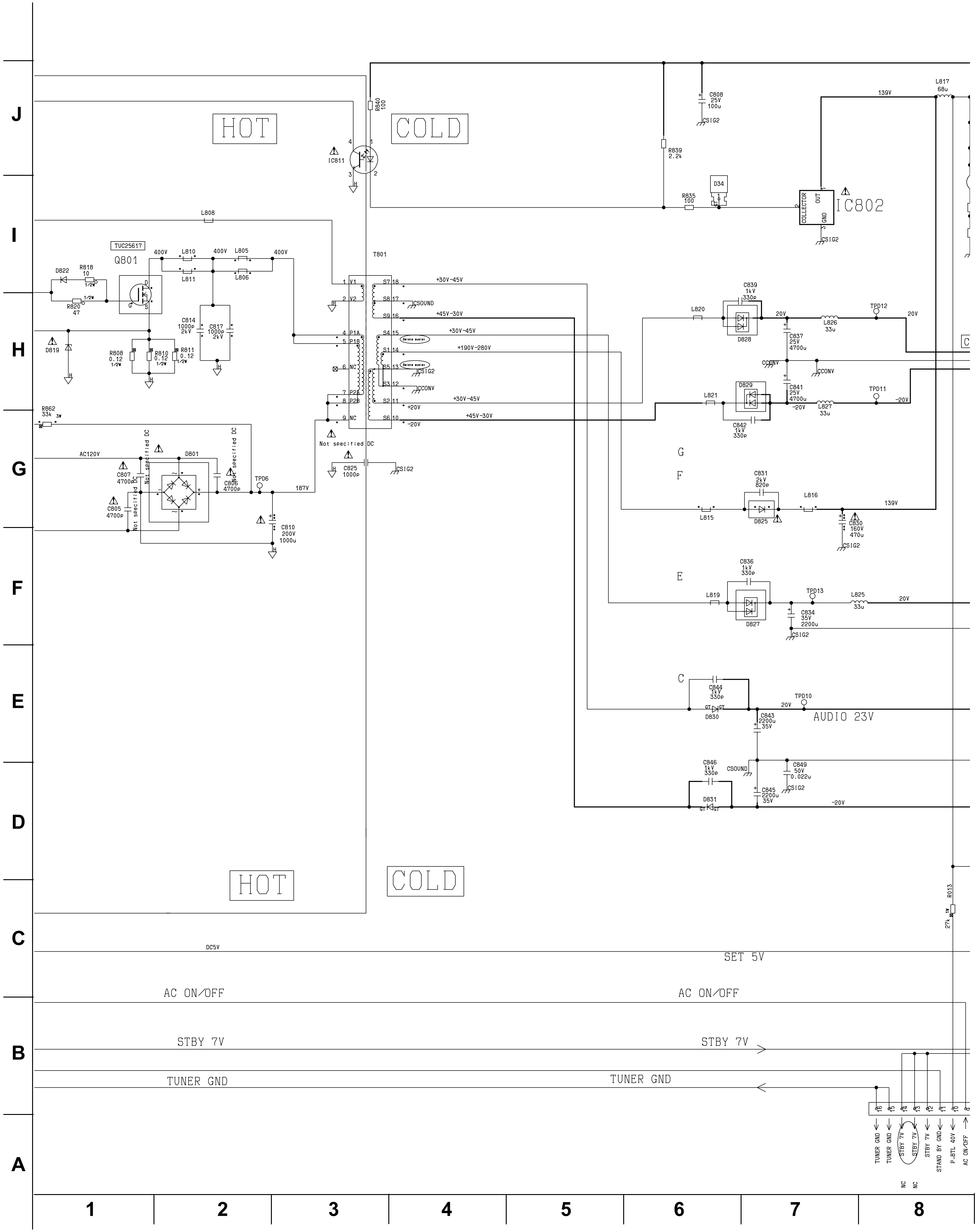

94V-0
KPC-M-PP
PbF
SEE REVERSE FOR ORDER NO.
CD
1
TNP2AA166
CD1
1
2
SN7201
E
C
D7201
CD2
2
1

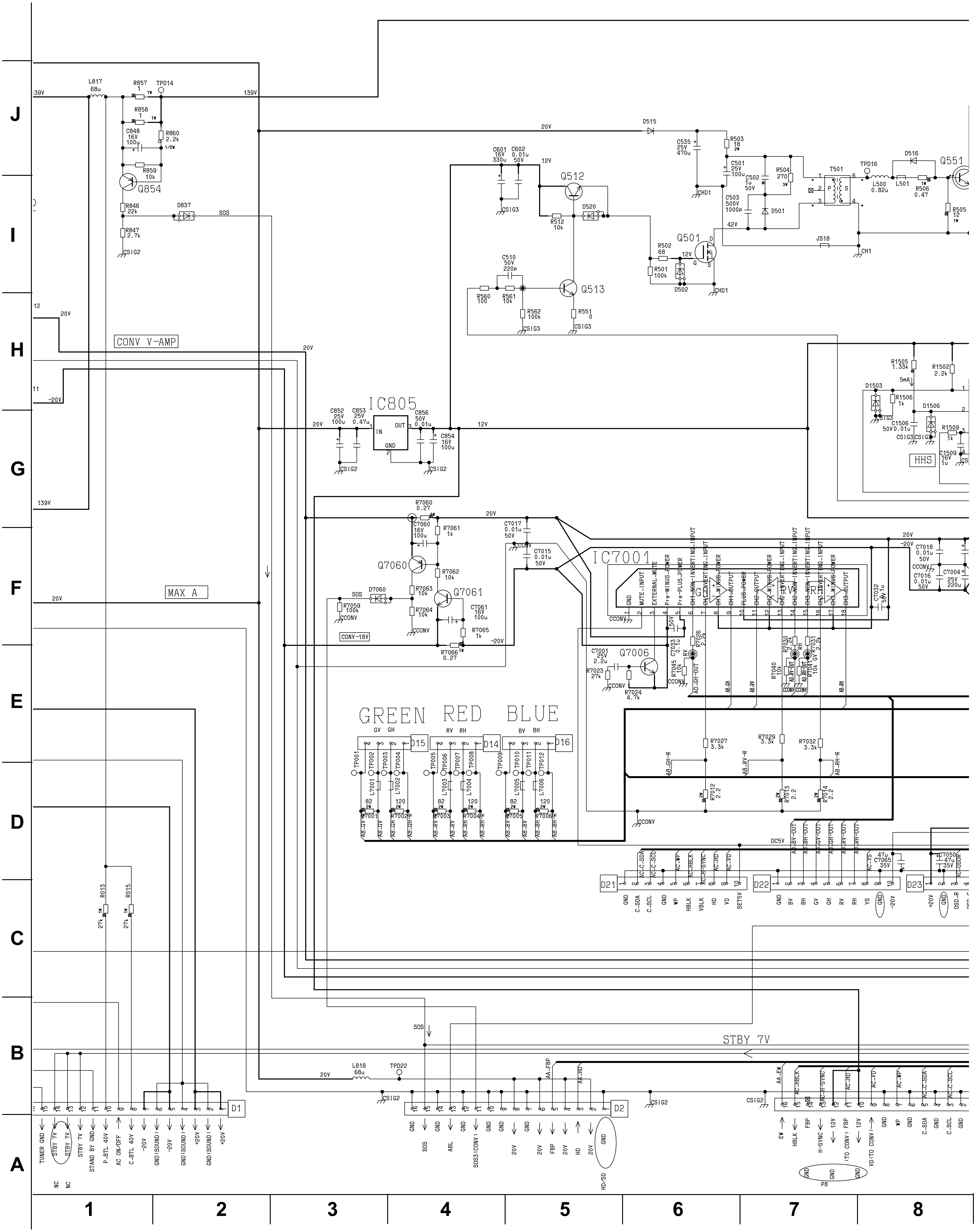

KPC-M-PP
D664
R655
C654
9
G1
1
JK1001
D652
R653
D657
D656
C652
R
R654
L
V
TNP2AA164
SEE REVERSE FOR ORDER NO.
94V-0
1
G
PbF
D662
D663
D659
D660
C653
D661
D651
D650
C650
R650
D655
C651
R652
R651
R656
D654
D653
D658

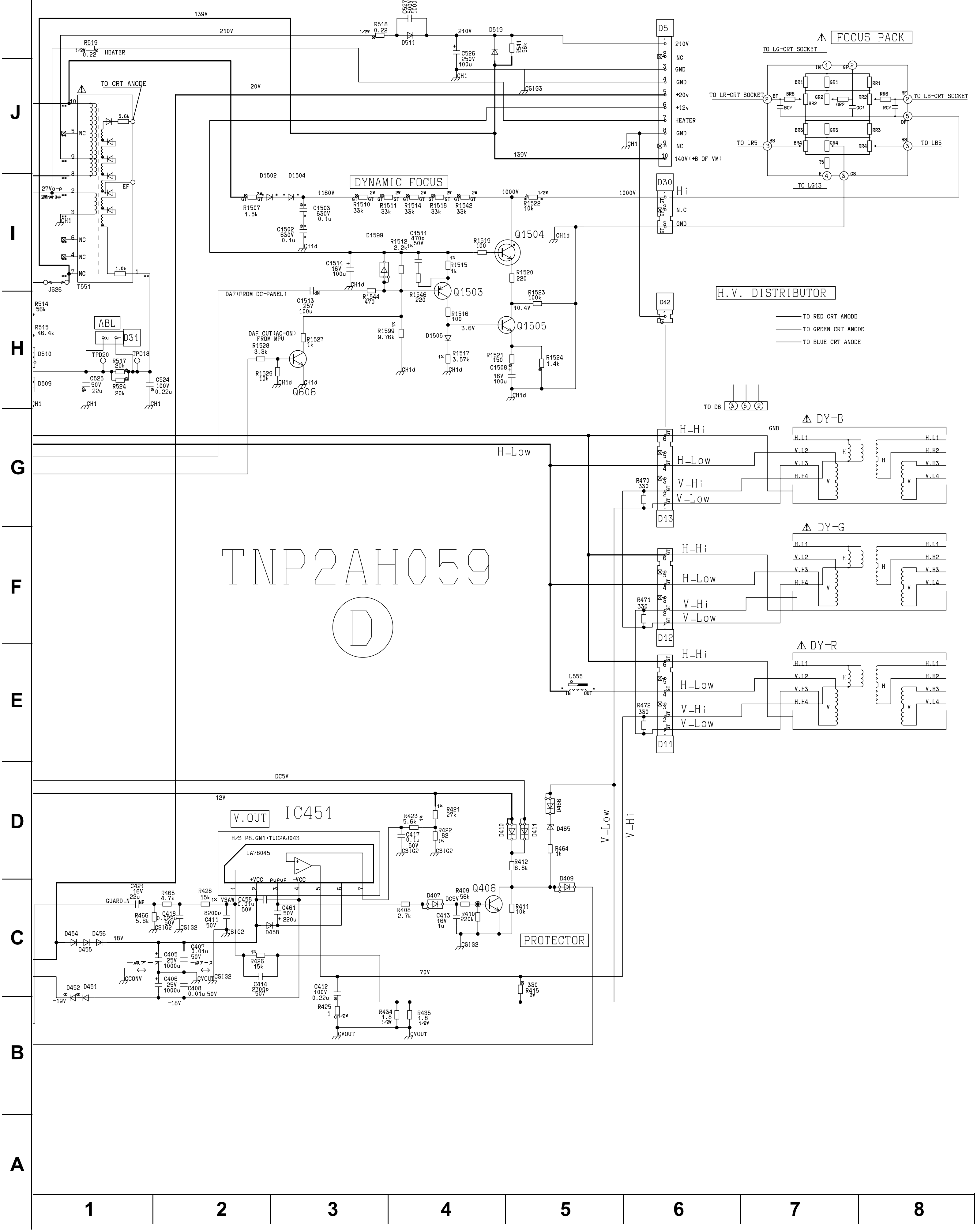

1
K3
8
TNP2AA165
SEE REVERSE FOR ORDER NO.
K
1
94V-0
PbF
KPC-M-PP
SW081
R089
SW082
SW086
SW084
SW083
SW085
D082
R088
R086
R083
R084
R082
R081
SW087
SW080
R080
D083
SW088
D081
R087
K2
1
5
K1
1
6


TEAMX5
94V-0
M
TNPA0615
SEE REVERSE
FOR ORDER NO.
C052
1
R
R072
R1
1
RM002
R073
C051
3


J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
HOT
HOT
HOT
COLD
R822
2.2k
C832
0.01u
50V
Q803
R836
100
D818
R833
100
R809
2.2M
C826
0.1u
50V
C822
50V
22u
C820
0.33u
50V
R865
15k
C809
0.022u
25V
R816
470
R812
10k
C823
150p
50V
D816
IC801
VCC
V REF
OVP
CURRENT SOURSE
IFB
FB
TDL
SIGNAL
CLUMP
T OFF
Q
RS
LATCH
R
S
V OUT
GND
CLM
C819
1000p
50V
R817
1%
2k
C815
1500p
50V
C855
0.1u
50V
C851
0.1u
50V
C824
35V
150u
R814
4.7
D817
D835
R815
300
C821
50V
2700p
R813
560
JS27
D822
R818
10
1/2W
R820
47
1/2W
TUC2561
Q801
D819
R808
0.12
1/2W
R862
33k
3W
AC120V
C807
4700
C805
4700p
Not specified DC
AC CORD
D7
WHITE
BLACK
5mm
AC120V
C801
0.47u
NEW
F801
Not specified DC
L.F
LF803
3.4mm
C802
0.47u
Not specified DC
L.F
LF801
D802
AC120V
AC120V
JS2
JS1
JS3
JS4
AC120V
AC120V
R800
3.3
5W
AC RELAY
RL801
IN RUSH
RL802
2.2mmGAP
2.2mmGAP
2.3mmGAP
2.3mmGAP
Hot-Cold distance = More 6.0mm
4.5mmGAP
4.5mmGAP
C803
2200p
C804
2200p
Not specified DC
Not specified DC
CSIG2
T802
D804
V009-101
D815
CSTAND-BY
DC5V
0.15W 5V 30mA
167
Q802
R866
3.3k
R805
100
R867
4.7k
CSTAND-BY
CSTAND-BY
TPD1
DC7V
C812
25V
470u
CHECK DRIVE
CSTAND-BY
JS21
CH1
CSIG2
JS13
CSIG2
CCONV
JS20
CC1
CSIG2
JS22
CH1
CSIG2
JS28
CC1
CCONV
R832
8.2M
1/2W
CTUNER
TUNER GND


HOT
COLD
HOT
COLD
R840 100
IC811
C808 25V 100u
CSIG2
R839 2.2k
D34
R835 100
COLLECTOR
OUT
GND
IC802
L817 68u
139V
L808
TUC25617
Q801
400V
L810
L811
L805
L806
D822
R818 10 1/2W
R820 47 1/2W
C814 1000p 2kV
C817 1000p 2kV
D819
R808 0.12 1/2W
R810 0.12 1/2W
R811 0.12 1/2W
T801
V1
V2
P1A
P1B
NC
P2A
P2B
S7
S8
S9
S4
S1
S5
S3
S2
S6
+30V-45V
CSOUND
+45V-30V
+190V-280V
Delete eyelet
CCONV
+20V
-20V
L820
C839 1kV 330p
D828
20V
L826 33u
TPD12
C837 25V 4700u
L821
D829
C841 25V 4700u
L827 33u
TPD11
C842 1kV 330p
R862 33k 3W
AC120V
D801
Not specified DC
C807 4700p
C806 4700p
C805 4700p
TPD6
187V
C810 200V 1000u
C825 1000p
G
F
C831 2kV 820p
L815
D825
L816
C830 160V 470u
E
C836 1kV 330p
L819
D827
TPD13
L825 33u
C834 35V 2200u
C
C844 1kV 330p
D830
TPD10
AUDIO 23V
C843 2200u 35V
C846 1kV 330p
CSOUND
C849 50V 0.022u
C845 2200u 35V
D831
GT
R013 27k 1W
DC5V
SET 5V
AC ON/OFF
STBY 7V
TUNER GND
TUNER GND
TUNER GND
STBY 7V
STBY 7V
STAND BY GND
P-BTL 40V
AC ON/OFF
NC
J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8


J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
L817 68u
R857 1 1W
TPD14
139V
R858 1 1W
R860 2.2k 1/2W
C848 16V 100u
R859 10k
Q854
R846 22k
R847 2.7k
CSIG2
D837
SOS
CONV V-AMP
20V
-20V
MAX A
D515
C535 25V 470u
R503 18 2W
C501 25V 100u
C502 1u 50V
R504 270 3W
C503 500V 1000p
D501
T501
TPD16
L500 0.82u
L501
D516
R506 0.47
Q551
R505 12 1W
JS18
CH1
CHD1
42V
Q501
R502 68
R501 100k
D502
C601 16V 330u
C602 0.01u 50V
12V
Q512
CSIG3
R512 10k
D520
C510 50V 220p
R560 100
R561 10k
Q513
R562 100k
R551 0
CSIG3
IC805
C852 25V 100u
C853 25V 0.47u
IN
OUT
GND
C856 50V 0.01u
C854 16V 100u
R1505 1.33k
R1502 2.2k
5mA
D1503
R1506 1k
D1506
C1506 50V 0.01u
R1509 1k
C1509 16V 1u
HHS
R7060 0.27
C7060 16V 100u
R7061 1k
Q7060
R7062 10k
R7063 10k
Q7061
D7060
R7059 100k
CCONV
R7064 10k
C7061 16V 100u
R7065 1k
CONV-18V
R7066 0.27
C7017 0.01u 50V
C7015 0.01u 50V
IC7001
GND
MUTE-INPUT
EXTERNAL-MUTE
Pre-MINUS-POWER
Pre-PLUS-POWER
CH1-NON-INVERTING-INPUT
CH1-INVERTING-INPUT
CH1-MINUS-POWER
CH1-OUTPUT
PLUS-POWER
CH2-MINUS-POWER
CH2-NON-INVERTING-INPUT
CH2-INVERTING-INPUT
CH3-NON-INVERTING-INPUT
CH3-INVERTING-INPUT
CH3-MINUS-POWER
CH3-OUTPUT
C7032 50V 1u
C7018 0.01u 50V
C7004 25V 220u
C7016 0.01u 50V
C7001 25V 2.2u
Q7006
R7023 27k
R7024 4.7k
C7033 0.1u
R7045 10k
R7026 2.2k
R7030 2.2k
R7031 2.2k
R7040 10k
R7041 10k
AD-GH-OUT
AD-RV-OUT
AD-RH-OUT
AB-GH
AB-RV
AB-RH
GREEN RED BLUE
GV GH
RV RH
BV BH
D15
D14
D16
TP001
TP002
TP003
TP004
TP005
TP006
TP007
TP008
TP009
TP010
TP011
TP012
L7001
L7002
L7003
L7004
L7005
L7006
R7001 82 2W
R7002 120 2W
R7003 82 2W
R7004 120 2W
R7005 82 2W
R7006 120 2W
AB-GV
AB-GH
AB-RV
AB-RH
AB-BV
AB-BH
R7027 3.3k
R7029 3.3k
R7032 3.3k
AB-GH-R
AB-RV-R
AB-RH-R
R7012 2.2 2W
R7013 2.2 2W
R7014 2.2 2W
DC5V
AA-BV-OUT
AA-BH-OUT
AA-GV-OUT
AA-GH-OUT
AA-RV-OUT
AA-RH-OUT
AC-YS
C7065 47u 35V
C7050 47u 35V
AC-C-SDA
AC-C-SCL
AC-WP
AC-HBLK
AC-H-SYNC
AC-HD
AC-VD
D21
GND
C-SDA
C-SCL
GND
WP
HBLK
VBLK
HD
VD
SET5V
D22
GND
BV
BH
GV
GH
RV
RH
YS
GND
-20V
D23
+20V
GND
OSD-R
R013 27k 1W
R015 27k 1W
SOS
STBY 7V
L818 68u
TPD22
AA-FBP
AA-HD
CSIG2
AA-EW
AC-HBLK
AC-H-SYNC
AC-HD
AC-VD
AC-WP
AC-C-SDA
AC-C-SCL
D1
TUNER GND
STBY 7V
STBY 7V
STBY 7V
STAND BY GND
P-BTL 40V
AC ON/OFF
C-BTL 40V
-20V
GND(SOUND)
-20V
GND(SOUND)
+20V
GND(SOUND)
+20V
NC
NC
D2
GND
SOS
GND
ABL
GND
SOS3(CONV)
GND
GND
20V
GND
20V
FBP
20V
HD
GND
HD/SD
EW
HBLK
FBP
H-SYNC
12V
(TO CONV) FBP
12V
VD(TO CONV)
GND
WP
GND
C-SDA
GND
C-SCL
GND
GND
GND
GND
P8


TNP2AH059
D
DYNAMIC FOCUS
FOCUS PACK
TO LG-CRT SOCKET
TO LR-CRT SOCKET
TO LB-CRT SOCKET
TO LR5
TO LB5
TO LG13
H.V. DISTRIBUTOR
TO RED CRT ANODE
TO GREEN CRT ANODE
TO BLUE CRT ANODE
TO D6
DY-B
DY-G
DY-R
H-Hi
H-Low
V-Hi
V-Low
ABL
D31
TO CRT ANODE
T551
JS26
D5
210V
NC
GND
+20v
+12v
HEATER
140V(+B OF VM)
D30
Hi
N.C
D42
D13
D12
D11
139V
210V
20V
1160V
1000V
Q1504
Q1503
Q1505
Q606
DAF(FROM DC-PANEL)
DAF CUT(AC-ON) FROM MPU
L555
V.OUT
IC451
LA78045
H/S P8.GN1:TUC2AJ043
Q406
PROTECTOR
DC5V
12V
18V
-19V
-18V
70V
GUARD-N
VSAW
CVOUT
CCONV
CSIG2
CSIG3
CH1
CH1d
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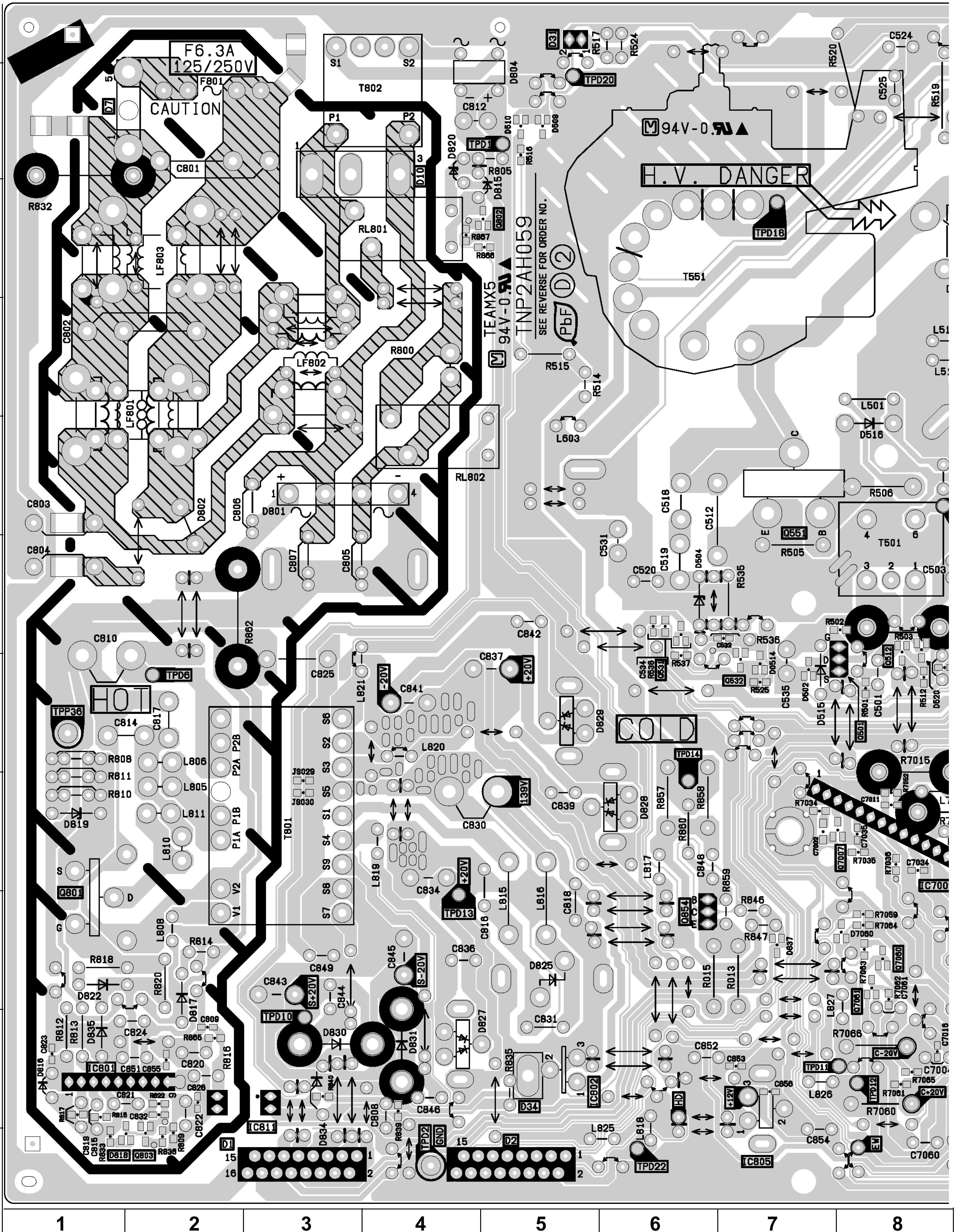F6.3A
125/250V
F801
CAUTION
T802
S1
S2
P1
P2
RL801
D10
LF803
LF802
LF801
R800
RL802
D801
D802
C801
C802
C803
C804
C805
C806
C807
R832
TEAMX5
94V-0
TNP2AH059
SEE REVERSE FOR ORDER NO.
PbF
D2
H.V. DANGER
94V-0
T551
TPD18
TPD20
TPD1
D804
C812
D820
R805
D815
Q802
R515
R514
L603
C524
C525
R520
R519
R517
R524
L501
D516
R506
Q551
R505
T501
C503
C512
C518
C519
C520
C531
D504
R535
R536
C842
C837
+20V
-20V
C841
L821
C825
R862
C810
TPD6
HOT
TPP36
C814
C817
R808
R811
R810
L806
L805
L811
D819
L810
Q801
T801
P2A P2B
P1A P1B
V1
V2
S6
S2
S3
S5
S1
S4
S9
S8
S7
JS029
JS030
L820
C830
139V
C839
D828
D829
COLD
TPD14
R857
R858
R860
C848
R859
Q854
R846
R847
C834
TPD13
L819
L815
L816
C818
C816
C836
D825
C831
D827
R015
R013
L817
R818
D822
R820
D817
R814
L808
C849
C843
S+20V
C845
S-20V
C844
TPD10
D830
D831
R812
R813
D835
C824
R865
C809
C820
R816
IC801
C851
C855
C821
C826
C822
IC811
D1
D834
C808
C846
TPD2
GND
D2
D34
R835
IC802
C852
C853
C856
+12V
HD
L825
L818
TPD22
IC805
C854
EW
R7015
R7034
C7011
Q7007
R7036
C7034
IC700
R7059
R7064
D7060
Q7060
R7063
R7062
R7061
Q7061
L827
R7066
C-20V
TPD11
TPD12
R7065
R7061
C7004
R7060
C+20V
C7060
L826
R502
R503
Q512
D514
Q532
R525
C535
D502
D515
R501
C501
R512
D520
Q501
Q531
R537
C534
R538
D837
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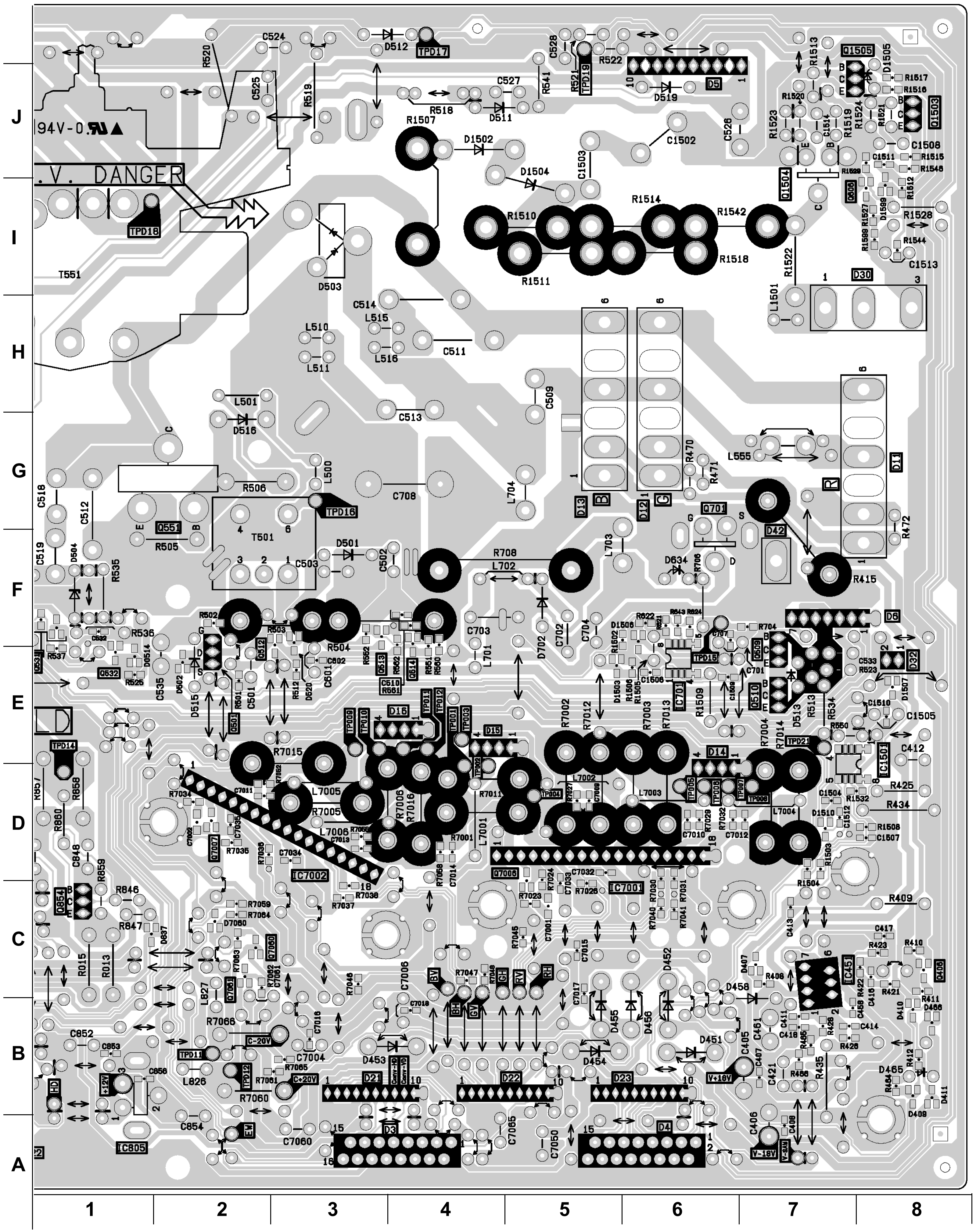

J
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94V-0
H.V. DANGER
T551
TPD17
TPD18
TPD19
TPD16
TPD14
TPD11
TPD12
TPD15
TPD21
D512
D503
D5
D519
D511
D1502
D1504
D1505
D30
D11
D12
D13
D42
D634
D6
D32
D14
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D16
D21
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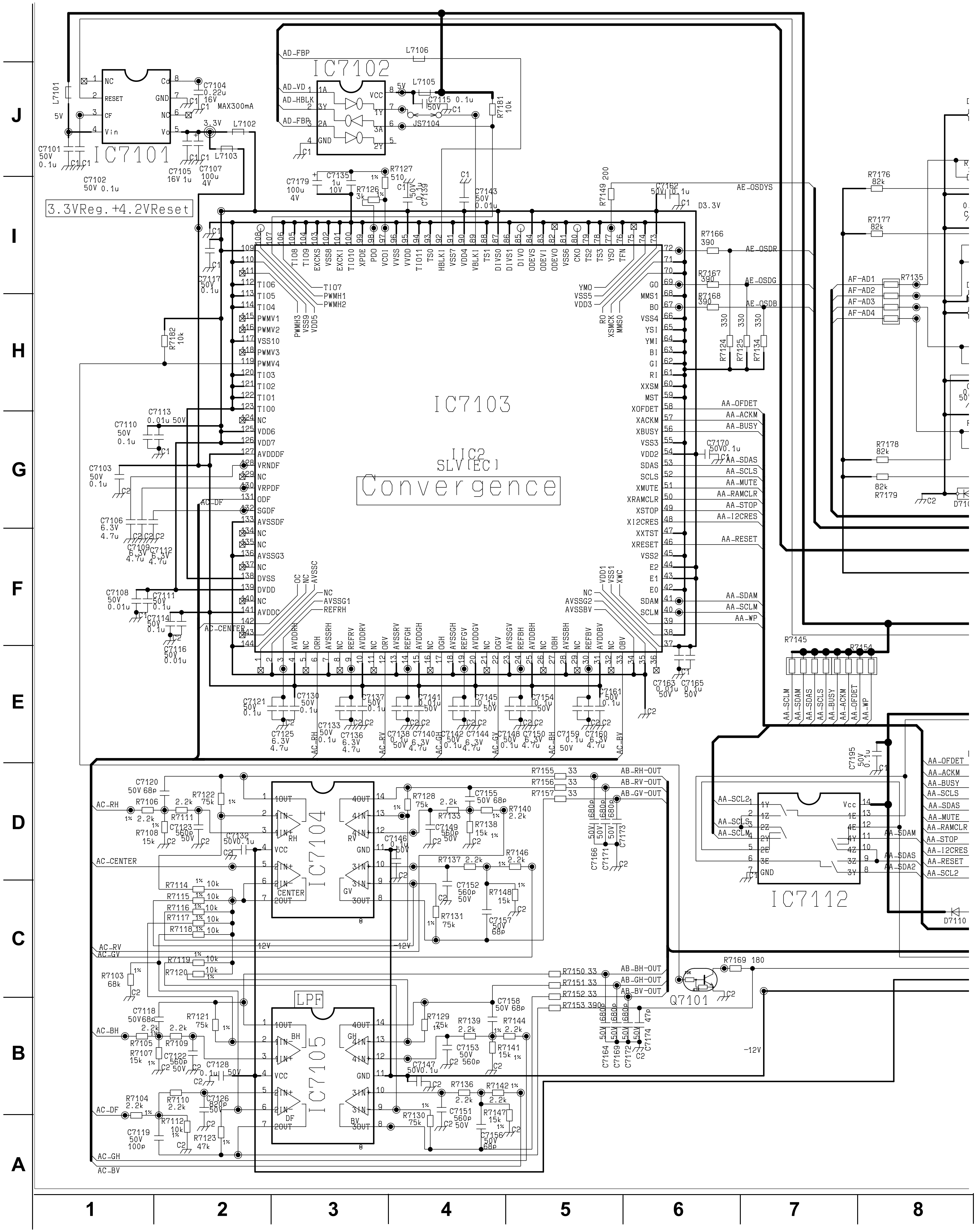
D23
D3
D4
D453
D454
D455
D456
D451
D452
D458
D465
Q1505
Q1503
Q1504
Q551
Q701
Q510
Q7006
Q7007
Q854
T501
L555
R1507
R1510
R1511
R1514
R1518
R1542
R708
R415
R7015
R7005
R7006
R7016
R7002
R7012
R7003
R7013
R7004
R7014
L7005
L7006
L7001
L7002
L7003
L7004
L702
L703
L704
C708
C513
C511
C514
C1502
IC7002
IC7001
IC701
IC1501
IC451
IC805
C-20V
C+20V
V+16V
V-16V
BV
BH
GH
GV
RV
RH
HD
EW
+12V
B
G
R



3.3VReg.+4.2VReset
IC7101
NC
RESET
CF
Vin
Cd
GND
NC
Vo
C7104 0.22u 16V
MAX300mA
3.3V
L7102
L7103
L7101
5V
C7101 50V 0.1u
C7102 50V 0.1u
C7105 16V 1u
C7107 100u 4V
IC7102
AD-FBP
AD-VD
AD-HBLK
AD-FBP
1A
3Y
2A
GND
VCC
1Y
3A
2Y
L7106
L7105
C7115 0.1u 50V
JS7104
R7181 10k
5V
IC7103
IIC2
SLV[EC]
Convergence
C7179 100u 4V
C7135 1u 10V
R7127 510
R7126 3k
C7139 50V 0.1u
C7143 50V 0.01u
R7149 200
C7162 50V 0.1u
D3.3V
AE-OSDYS
R7166 390
AE-OSDR
R7167 390
AE-OSDG
R7168 390
AE-OSDB
R7124 330
R7125 330
R7134 330
R7182 10k
C7117 50V 0.1u
C7113 0.01u 50V
C7110 50V 0.1u
C7103 50V 0.1u
C7106 6.3V 4.7u
C7109 6.3V 4.7u
C7112 6.3V 4.7u
C7108 50V 0.01u
C7111 50V 0.1u
C7114 50V 0.1u
C7116 50V 0.01u
AC-DF
AC-CENTER
AA-OFDET
AA-ACKM
AA-BUSY
C7170 50V 0.1u
AA-SDAS
AA-SCLS
AA-MUTE
AA-RAMCLR
AA-STOP
AA-I2CRES
AA-RESET
AA-SDAM
AA-SCLM
AA-WP
C7163 0.01u 50V
C7165 0.1u 50V
C7121 50V 0.1u
C7130 50V 0.1u
C7125 6.3V 4.7u
C7133 50V 0.1u
C7136 6.3V 4.7u
C7137 50V 0.1u
C7138 0.1u 50V
C7140 6.3V 4.7u
C7141 0.01u 50V
C7142 50V 0.1u
C7144 6.3V 4.7u
C7145 0.1u 50V
C7148 50V 0.1u
C7150 6.3V 4.7u
C7154 0.1u 50V
C7159 0.1u 50V
C7160 6.3V 4.7u
C7161 50V 0.1u
AC-RH
AC-RV
AC-GH
AC-GV
AC-BH
AC-BV
R7176 82k
R7177 82k
R7135
AF-AD1
AF-AD2
AF-AD3
AF-AD4
R7178 82k
R7179 82k
R7145
R7154
C7195 50V 0.1u
IC7112
AA-SCL2
AA-SCLS
AA-SCLM
AA-SDA2
D7110
IC7104
RH
RV
CENTER
GV
C7120 50V 68p
R7106 2.2k
R7111 2.2k
R7122 75k
R7108 15k
C7123 560p 50V
C7132 50V 0.1u
R7114 10k
R7115 10k
R7116 10k
R7117 10k
R7118 10k
R7119 10k
R7120 10k
R7103 68k
12V
-12V
R7128 75k
R7133 2.2k
C7155 50V 68p
R7140 2.2k
C7149 560p 50V
R7138 15k
C7146 0.1u 50V
R7137 2.2k
R7146 2.2k
C7152 560p 50V
R7148 15k
R7131 75k
C7157 50V 68p
R7155 33
R7156 33
R7157 33
AB-RH-OUT
AB-RV-OUT
AB-GV-OUT
C7166 50V 680p
C7171 50V 680p
C7173 50V 680p
R7150 33
R7151 33
R7152 33
R7153 390
AB-BH-OUT
AB-GH-OUT
AB-BV-OUT
R7169 180
Q7101
C7164 50V 680p
C7169 50V 680p
C7172 50V 680p
C7174 47p
IC7105
LPF
BH
GH
DF
BV
C7118 50V 68p
R7105 2.2k
R7109 2.2k
R7121 75k
R7107 15k
C7122 560p 50V
C7128 0.1u 50V
R7104 2.2k
R7110 2.2k
C7126 820p 50V
R7112 10k
R7123 47k
C7119 50V 100p
R7129 75k
R7139 2.2k
R7144 2.2k
C7153 50V 560p
R7141 15k
C7147 50V 0.1u
R7136 2.2k
R7142 2.2k
C7151 560p 50V
R7147 15k
R7130 75k
C7156 50V 68p
J
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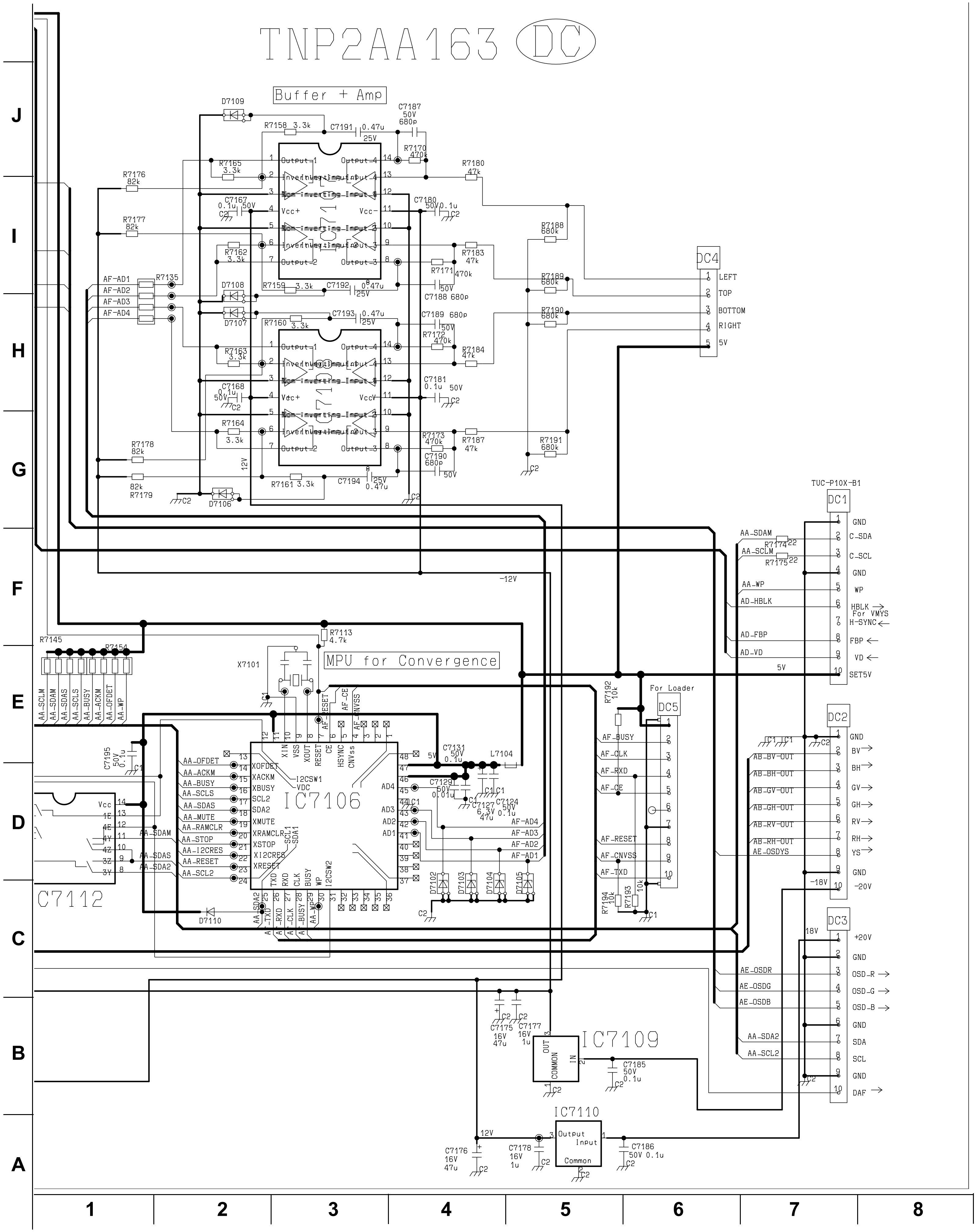
TNP2AA163 (DC)
Buffer + Amp
MPU for Convergence
D7109
R7158 3.3k
C7191 0.47u 25V
C7187 50V 680p
R7170 470k
R7165 3.3k
R7176 82k
R7180 47k
C7167 0.1u 50V
C7180 50V 0.1u
R7177 82k
R7188 680k
R7162 3.3k
R7183 47k
R7171 470k
IC7107
Output-1
Inverting-Input-1
Non-inverting-Input-1
Vcc+
Non-inverting-Input-2
Inverting-Input-2
Output-2
Output-4
Inverting-Input-4
Non-inverting-Input-4
Vcc-
Non-inverting-Input-3
Inverting-Input-3
Output-3
AF-AD1
AF-AD2
AF-AD3
AF-AD4
R7135
D7108
D7107
R7159 3.3k
C7192 0.47u 25V
C7188 680p 50V
R7189 680k
DC4
1 LEFT
2 TOP
3 BOTTOM
4 RIGHT
5 5V
R7160 3.3k
C7193 0.47u 25V
C7189 680p 50V
R7190 680k
R7163 3.3k
R7172 470k
R7184 47k
IC7108
C7168 0.1u 50V
C7181 0.1u 50V
R7164 3.3k
R7173 470k
R7187 47k
R7191 680k
R7178 82k
C7190 680p 50V
R7179 82k
R7161 3.3k
C7194 0.47u 25V
D7106
12V
-12V
C2
TUC-P10X-B1
DC1
1 GND
2 C-SDA
3 C-SCL
4 GND
5 WP
6 HBLK
For VMYS
7 H-SYNC
8 FBP
9 VD
10 SET5V
AA-SDAM
AA-SCLM
R7174 22
R7175 22
AA-WP
AD-HBLK
AD-FBP
AD-VD
5V
R7145
R7154
R7113 4.7k
X7101
AA-SCLM
AA-SDAM
AA-SDAS
AA-SCLS
AA-BUSY
AA-ACKM
AA-OFDET
AA-WP
AF-RESET
AF-CE
AF-CNVSS
XIN
VSS
XOUT
RESET
CE
HSYNC
CNVss
I2CSW1
VDC
IC7106
XOFDET
XACKM
XBUSY
SCL2
SDA2
XMUTE
XRAMCLR
XSTOP
XI2CRES
XRESET
SCL1
SDA1
TXD
RXD
CLK
BUSY
WP
I2CSW2
AD4
AD3
AD2
AD1
AA-OFDET
AA-ACKM
AA-BUSY
AA-SCLS
AA-SDAS
AA-MUTE
AA-RAMCLR
AA-STOP
AA-I2CRES
AA-RESET
AA-SCL2
AA-SDAM
AA-SDAS
AA-SDA2
C7195 50V 0.1u
C7131 50V 0.1u
L7104
C7129 50V 0.01u
C7127 6.3V 47u
C7124 50V 0.1u
AF-AD4
AF-AD3
AF-AD2
AF-AD1
D7102
D7103
D7104
D7105
D7110
AA-SDA2
AF-TXD
AF-RXD
AF-CLK
AF-BUSY
AA-WP
Vcc
1E
4E
4Y
4Z
3Z
3Y
IC7112
R7192 10k
For Loader
DC5
AF-BUSY
AF-CLK
AF-RXD
AF-CE
AF-RESET
AF-CNVSS
AF-TXD
R7194 10k
R7193 10k
C1
DC2
1 GND
2 BV
3 BH
4 GV
5 GH
6 RV
7 RH
8 YS
9 GND
10 -20V
AB-BV-OUT
AB-BH-OUT
AB-GV-OUT
AB-GH-OUT
AB-RV-OUT
AB-RH-OUT
AE-OSDYS
-18V
DC3
18V
1 +20V
2 GND
3 OSD-R
4 OSD-G
5 OSD-B
6 GND
7 SDA
8 SCL
9 GND
10 DAF
AE-OSDR
AE-OSDG
AE-OSDB
AA-SDA2
AA-SCL2
C7175 16V 47u
C7177 16V 1u
IC7109
OUT
COMMON
IN
C7185 50V 0.1u
IC7110
Output
Input
Common
C7176 16V 47u
C7178 16V 1u
C7186 50V 0.1u
J
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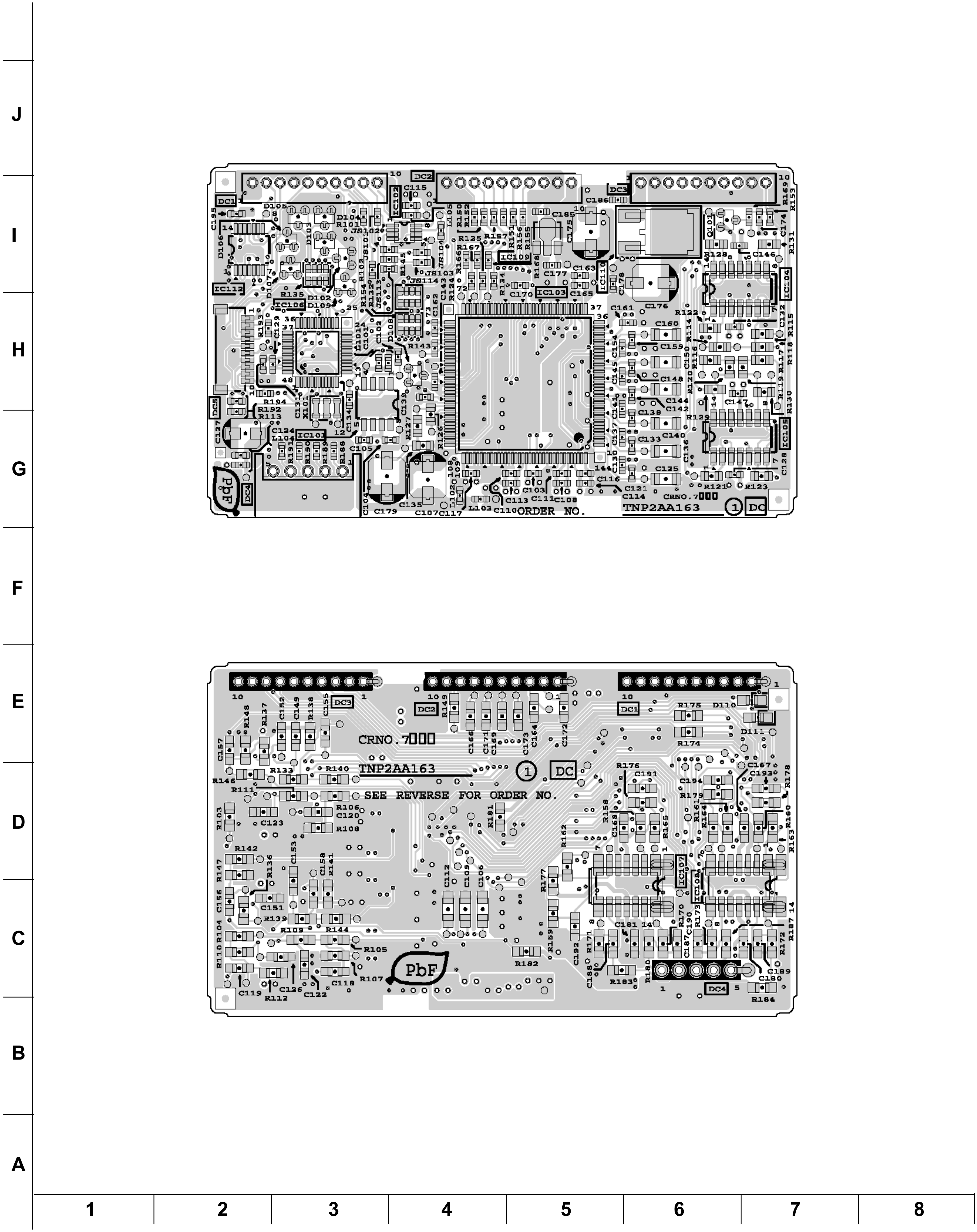

J
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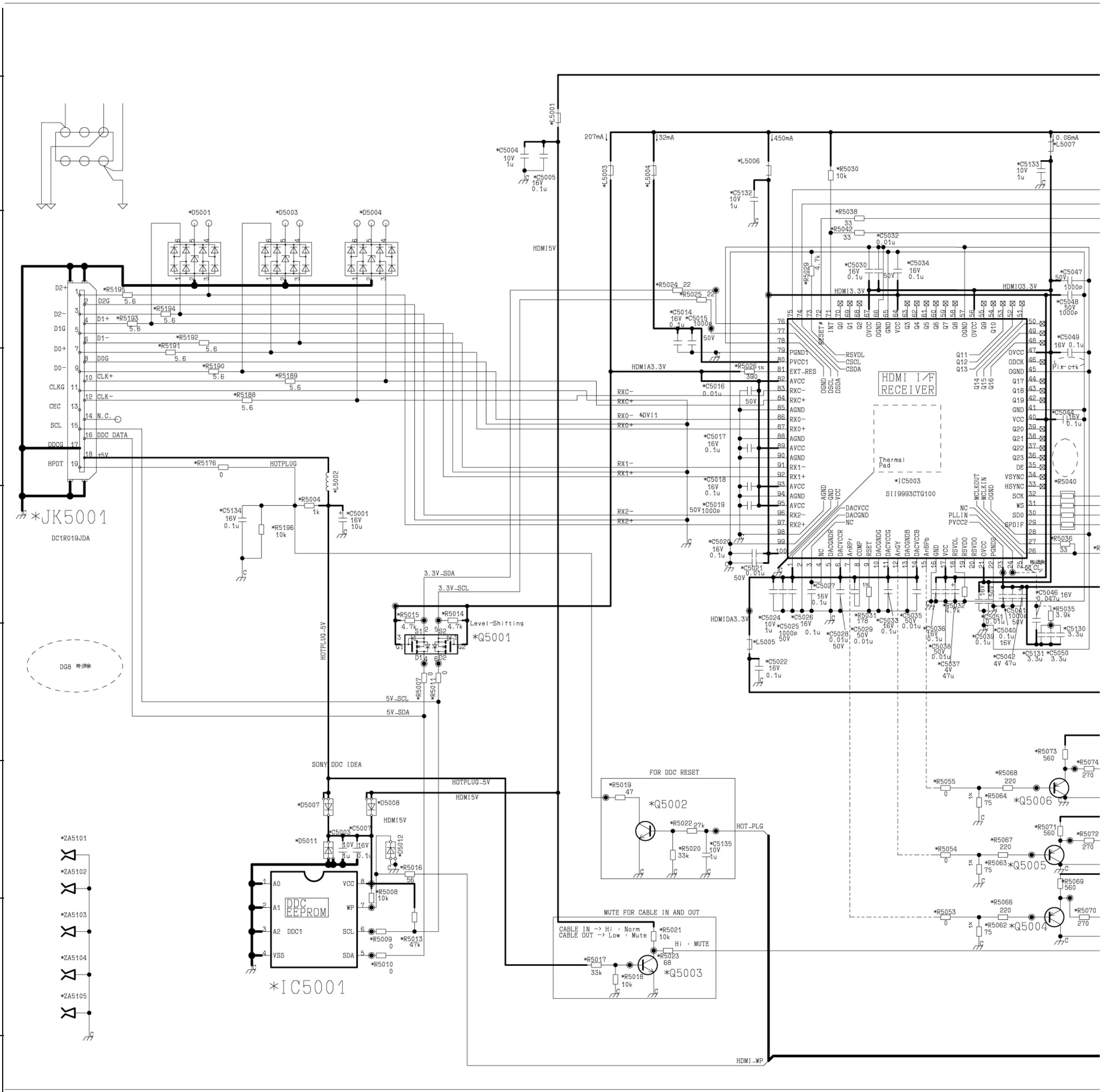
DC1
DC2
DC3
DC4
DC5
IC101
IC102
IC103
IC104
IC105
IC106
IC107
IC108
IC109
IC110
IC112
Q101
X101
L102
L103
L104
L105
D102
D103
D104
D105
D106
D107
D108
D109
D110
D111
JS102
JS103
JS104
JS113
JS114
C175
C176
C179
C135
C107
C117
C195
C186
C115
R101
R135
R143
R193
R194
R192
R113
R188
R189
R190
R191
R121
R122
R123
R128
R129
R130
R131
R153
R169
C174
C146
C147
C160
C159
C148
C144
C142
C138
C140
C133
C125
C116
C121
C114
C113
C103
C111
C108
C110
C105
C104
C124
C127
C131
C134
C139
C161
C163
C165
C170
C177
C178
C185
CRNO.7
ORDER NO.
TNP2AA163
①
DC
PbF
10
1
5
12
13
24
25
36
37
48
72
73
108
109
144
CRNO.7
TNP2AA163
SEE REVERSE FOR ORDER NO.
R175
R174
R176
C191
C193
C194
C167
R178
R179
R161
R164
R160
R163
R158
C168
R165
R162
R177
R159
C192
R182
R181
C112
C109
C106
C166
C171
C169
C173
C164
C172
R149
C157
R148
R137
C152
C149
R138
C155
R133
R140
R146
R111
R106
C120
R108
R103
C123
R142
R147
R136
C153
C158
R141
C156
C151
R139
R104
R109
R144
R110
R105
C119
R112
C126
C122
C118
R107
C181
C187
C190
R170
R173
R171
R172
R187
C188
R183
R180
C189
C180
R184

DC-PCB TOP & BOTTOM VIEW


*JK5001
DC1R019JDA
D2+
D2−
D1G
D0+
D0−
CLKG
CEC
SCL
DDCG
HPDT
D2G
D1+
D1−
D0G
CLK+
CLK−
N.C.
DDC DATA
+5V
*D5001
*D5003
*D5004
*R5195 5.6
*R5194 5.6
*R5193 5.6
*R5192 5.6
*R5191 5.6
*R5190 5.6
*R5189 5.6
*R5188 5.6
*R5176 0
HOTPLUG
*L5002
*R5004 1k
*C5001 16V 10u
*C5134 16V 0.1u
*R5196 10k
DG8 削除
3.3V_SDA
3.3V_SCL
*R5015 4.7k
*R5014 4.7k
Level-Shifting
*Q5001
*R5007 0
*R5011 0
5V_SCL
5V_SDA
HOTPLUG_5V
SONY DDC IDEA
HOTPLUG_5V
HDMI5V
*D5007
*D5008
*D5011
*D5012
*C5003 10V 1u
*C5007 16V 0.1u
*R5016 56
*R5008 10k
*R5009 0
*R5013 47k
*R5010 0
DDC EEPROM
DDC1
A0
A1
A2
VSS
VCC
WP
SCL
SDA
*IC5001
*ZA5101
*ZA5102
*ZA5103
*ZA5104
*ZA5105
*L5001
*C5004 10V 1u
*C5005 16V 0.1u
HDMI5V
207mA
*L5003
32mA
*L5004
*L5006
450mA
*C5132 10V 1u
*R5030 10k
0.06mA
*L5007
*C5133 10V 1u
*R5038 33
*R5042 33
*C5032 0.01u
*R5029 4.7k
*C5030 16V 0.1u
*C5034 16V 0.1u
*C5047 50V 1000p
*C5048 50V 1000p
HDMI3.3V
HDMIO3.3V
*R5024 22
*R5025 22
*C5014 16V 0.1u
*C5015 1000p 50V
HDMIA3.3V
*R5026 390
*C5016 0.01u
RXC−
RXC+
RX0− &DVI1
RX0+
RX1−
RX1+
RX2−
RX2+
*C5017 16V 0.1u
*C5018 16V 0.1u
*C5019 50V 1000p
*C5020 16V 0.1u
*C5021 0.01u 50V
HDMI I/F RECEIVER
Thermal Pad
*IC5003
SII9993CTG100
PGND1
PVCC1
EXT_RES
AVCC
AGND
RSVDL
CSCL
CSDA
OGND
DSCL
DSDA
DACVCC
DACGND
NC
PLLIN
PVCC2
MCLKOUT
MCLKIN
OVCC
ODCK
Q11
Q12
Q13
Q14
Q15
Q16
Q17
Q18
Q19
Q20
Q21
Q22
Q23
DE
VSYNC
HSYNC
SCK
WS
SD0
SPDIF
*C5049 16V 0.1u
Pix clk
*C5044 16V 0.1u
*R5040
*R5036 33
*C5024 10V 1u
*C5025 1000p 50V
*C5026 16V 0.1u
*C5027 16V 0.1u
*C5028 0.01u 50V
*C5029 50V 0.01u
*R5031 178
*C5033 16V 0.1u
*C5035 50V 0.01u
*R5032 4.7k
*C5036 16V 0.1u
*C5038 50V 0.01u
*C5037 4V 47u
*C5039 0.1u
*C5051 0.01u
*C5040 0.1u 16V
*C5041 1000p 50V
*C5042 4V 47u
*C5046 0.047u 16V
*R5035 3.9k
*C5130 3.3u
*C5131 3.3u
*C5050 3.3u
HDMIDA3.3V
*L5005
*C5022 16V 0.1u
FOR DDC RESET
*R5019 47
*Q5002
*R5022 27k
*R5020 33k
*C5135 10V 1u
HOT_PLG
MUTE FOR CABLE IN AND OUT
CABLE IN -> Hi : Norm
CABLE OUT -> Low : Mute
*R5021 10k
Hi : MUTE
*R5023 68
*R5017 33k
*R5018 10k
*Q5003
HDMI_WP
*R5073 560
*R5074 270
*R5055 0
*R5068 220
*R5064 75
*Q5006
*R5071 560
*R5072 270
*R5054 0
*R5067 220
*R5063 75
*Q5005
*R5069 560
*R5070 270
*R5053 0
*R5066 220
*R5062 75
*Q5004
J
I
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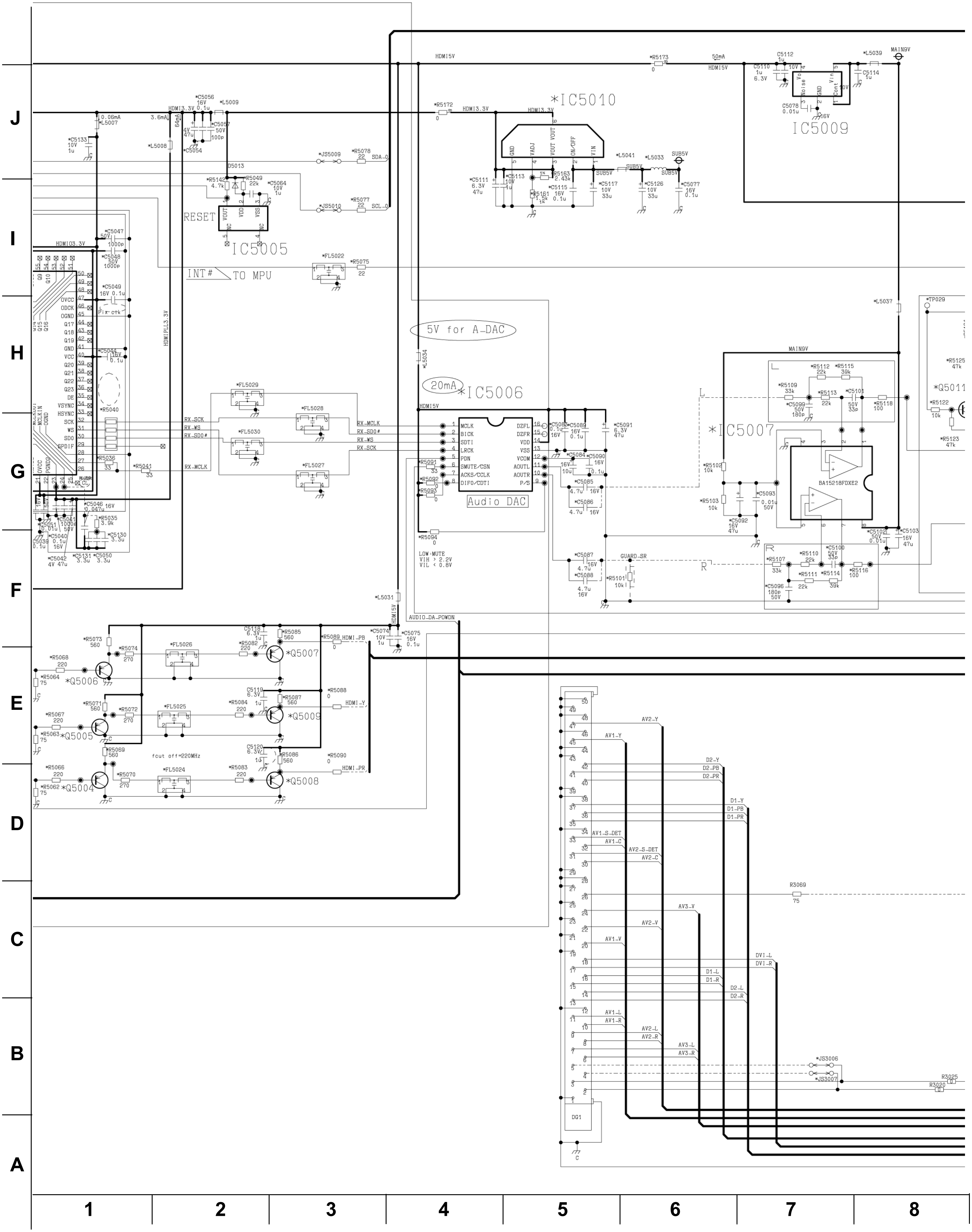

J
I
H
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D
C
B
A
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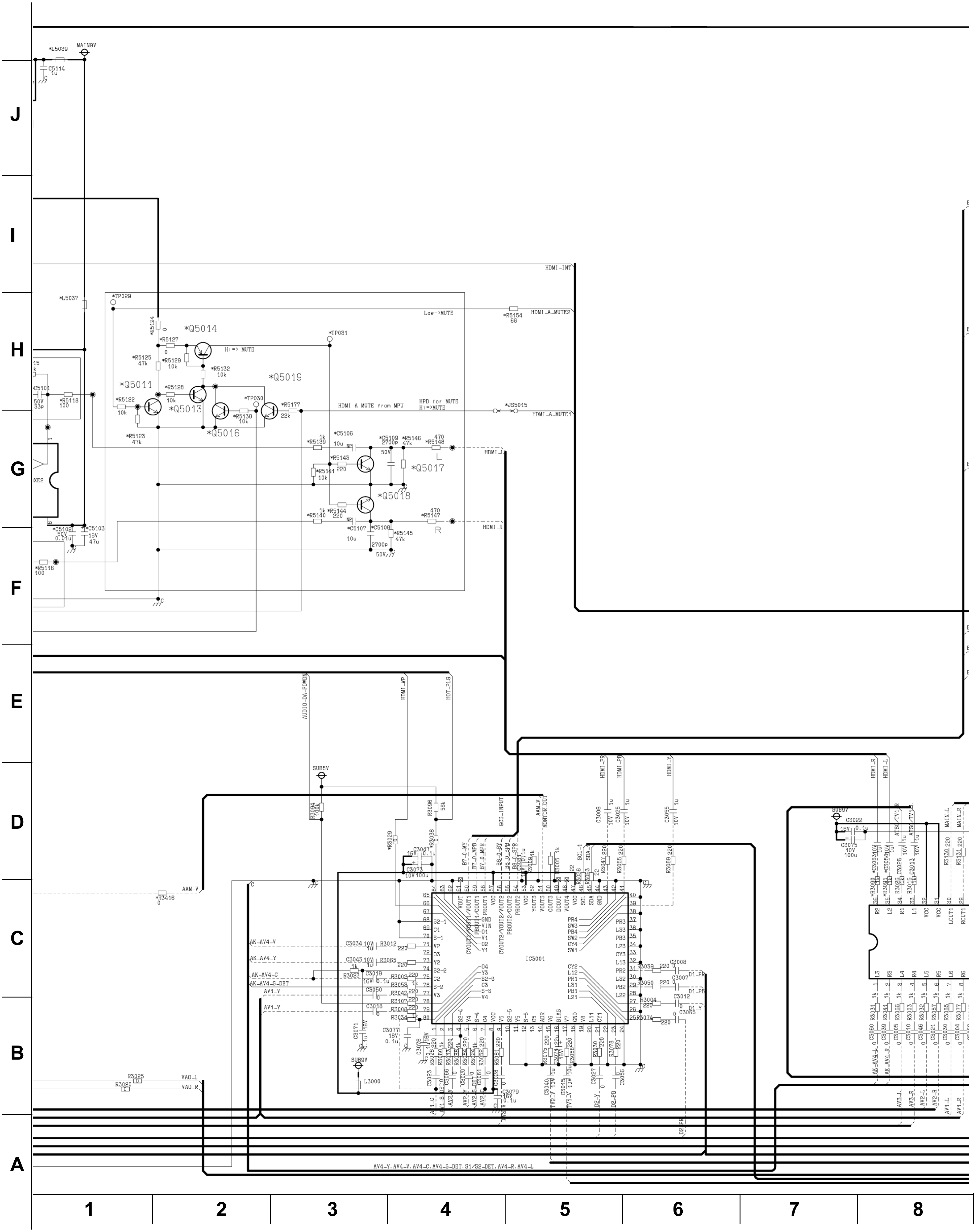
7
8
HDMI5V
HDMI3.3V
MAIN9V
*IC5010
IC5009
RESET
IC5005
INT#
TO MPU
SDA-0
SCL-0
5V for A-DAC
20mA
*IC5006
Audio DAC
MCLK
BICK
SDTI
LRCK
PDN
SMUTE/CSN
ACKS/CCLK
DIF0/CDTI
DZFL
DZFR
VDD
VSS
VCOM
AOUTL
AOUTR
P/S
LOW:MUTE
VIH > 2.2V
VIL < 0.8V
*IC5007
BA15218FDXE2
GUARD-SR
AUDIO-DA-POWDN
HDMI-PB
HDMI-Y
HDMI-PR
*Q5006
*Q5005
*Q5004
*Q5007
*Q5009
*Q5008
*Q5011
fcut off=220MHz
RX-SCK
RX-WS
RX-SD0#
RX-MCLK
SUB5V
DG1
AV1-Y
AV2-Y
D2-Y
D2-PB
D2-PR
D1-Y
D1-PB
D1-PR
AV1-S-DET
AV1-C
AV2-S-DET
AV2-C
AV3-V
AV2-V
AV1-V
DVI-L
DVI-R
D1-L
D1-R
D2-L
D2-R
AV1-L
AV1-R
AV2-L
AV2-R
AV3-L
AV3-R
R3069
*JS3006
*JS3007
R3025
R3020


J
I
H
G
F
E
D
C
B
A
1
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3
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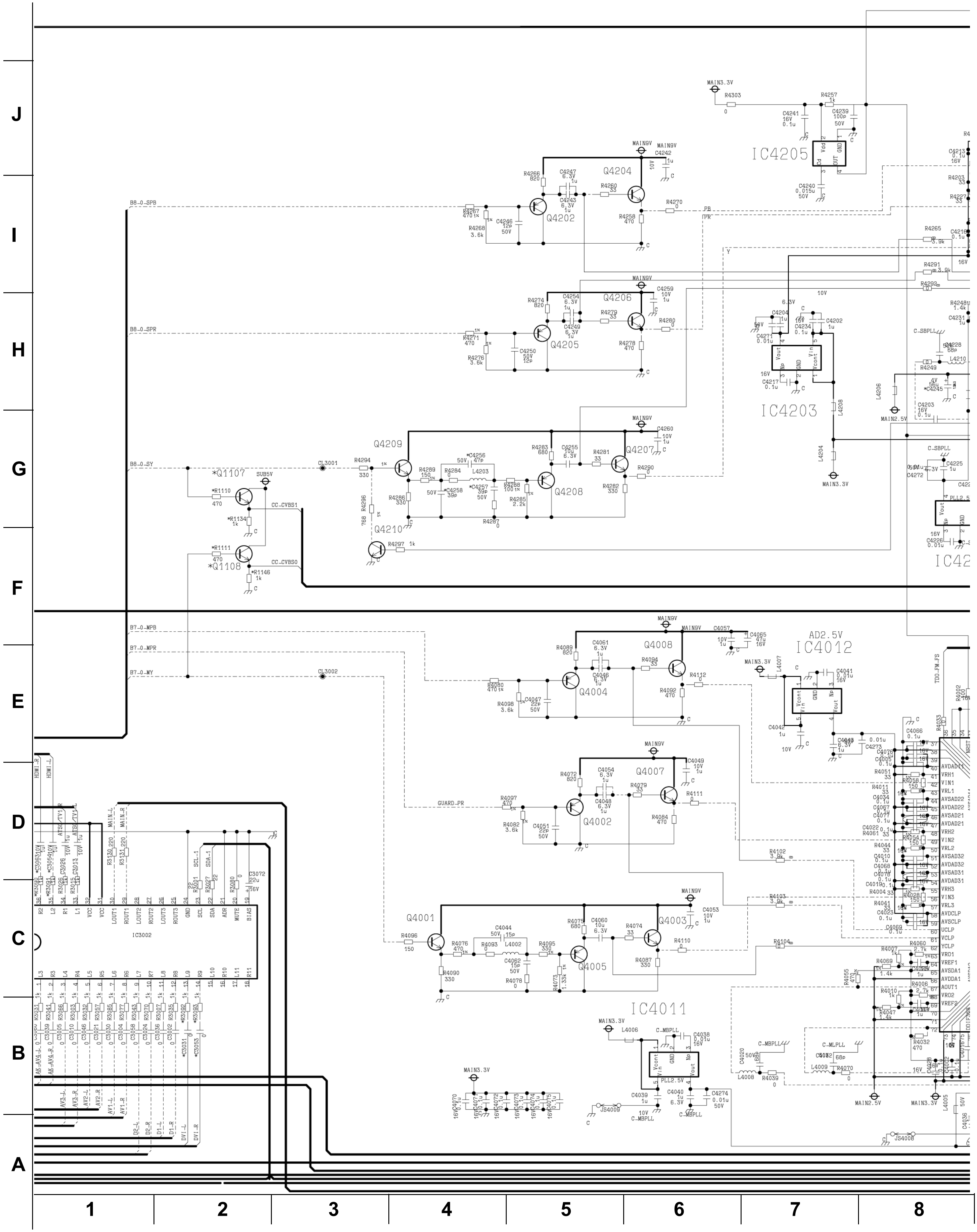
8
MAIN9V
*L5039
C5114
1u
*L5037
*TP029
*R5124
0
*Q5014
*R5127
0
Hi=> MUTE
*R5125
47k
*R5129
10k
*R5132
10k
*Q5019
*Q5011
*R5128
10k
*TP030
*R5177
22k
*R5122
10k
*Q5013
*R5138
10k
*Q5016
*R5123
47k
*TP031
Low=>MUTE
*R5154
68
HDMI-A-MUTE2
HDMI A MUTE from MPU
HPD for MUTE
Hi=>MUTE
*JS5015
HDMI-A-MUTE1
HDMI-INT
*C5101
50V
33p
*R5118
100
*R5139
1k
*C5106
10u
*C5109
2700p
50V
*R5146
47k
*R5148
470
L
HDMI-L
*R5143
220
*R5141
10k
*Q5017
*Q5018
*R5140
1k
*R5144
220
*R5147
470
R
HDMI-R
*C5107
10u
*C5108
2700p
50V
*R5145
47k
*C5102
50V
0.01u
*C5103
16V
47u
*R5116
100
AUDIO_DA_POWDN
HDMI_WP
HOT_PLG
SUB5V
R3094
100k
R3096
56k
*R3029
*R3038
C3047
16V
C3073
10V 100u
GC3-INPUT
AAM-Y
MONITOR-OUT
HDMI-PR
HDMI-PB
HDMI-Y
C3006
10V 1u
C3025
10V 1u
C3055
10V 1u
R3047 220
R3055 220
R3089 220
R3005 1k
SCL-1
SDA-1
IC3001
AAM-Y
*R3416
0
AK-AV4-V
AK-AV4-Y
AK-AV4-C
AK-AV4-S-DET
AV1-V
AV1-Y
C3034
C3043
C3019
C3050
C3018
R3012
R3065
R3023
R3002
R3053
R3042
R3107
R3008
R3034
C3071
C3077
C3076
SUB9V
L3000
C3079
R3039
R3050
R3004
R3074
C3008
C3007
C3012
C3065
D1-PR
D1-PB
D1-Y
R3025
R3020
VAO-L
VAO-R
AV4-Y,AV4-V,AV4-C,AV4-S-DET,S1/S2-DET,AV4-R,AV4-L
SUB9V
C3022
16V 0.1u
C3075
10V
100u
HDMI-R
HDMI-L
ATSC/TV1-R
ATSC/TV1-L
MAIN-L
MAIN-R
R3130 220
R3131 220
LOUT1
ROUT1
R3031
R3041
R3066
R3003
R3057
R3085
R3077
C3060
C3039
C3005
C3010
C3046
C3021
C3030
C3004
AK-AV4-L
AK-AV4-R
AV3-L
AV3-R
AV2-L
AV2-R
AV1-L
AV1-R
D2-Y
D2-PB
D2-PR
TV2-Y
TV1-Y


J
I
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D
C
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A
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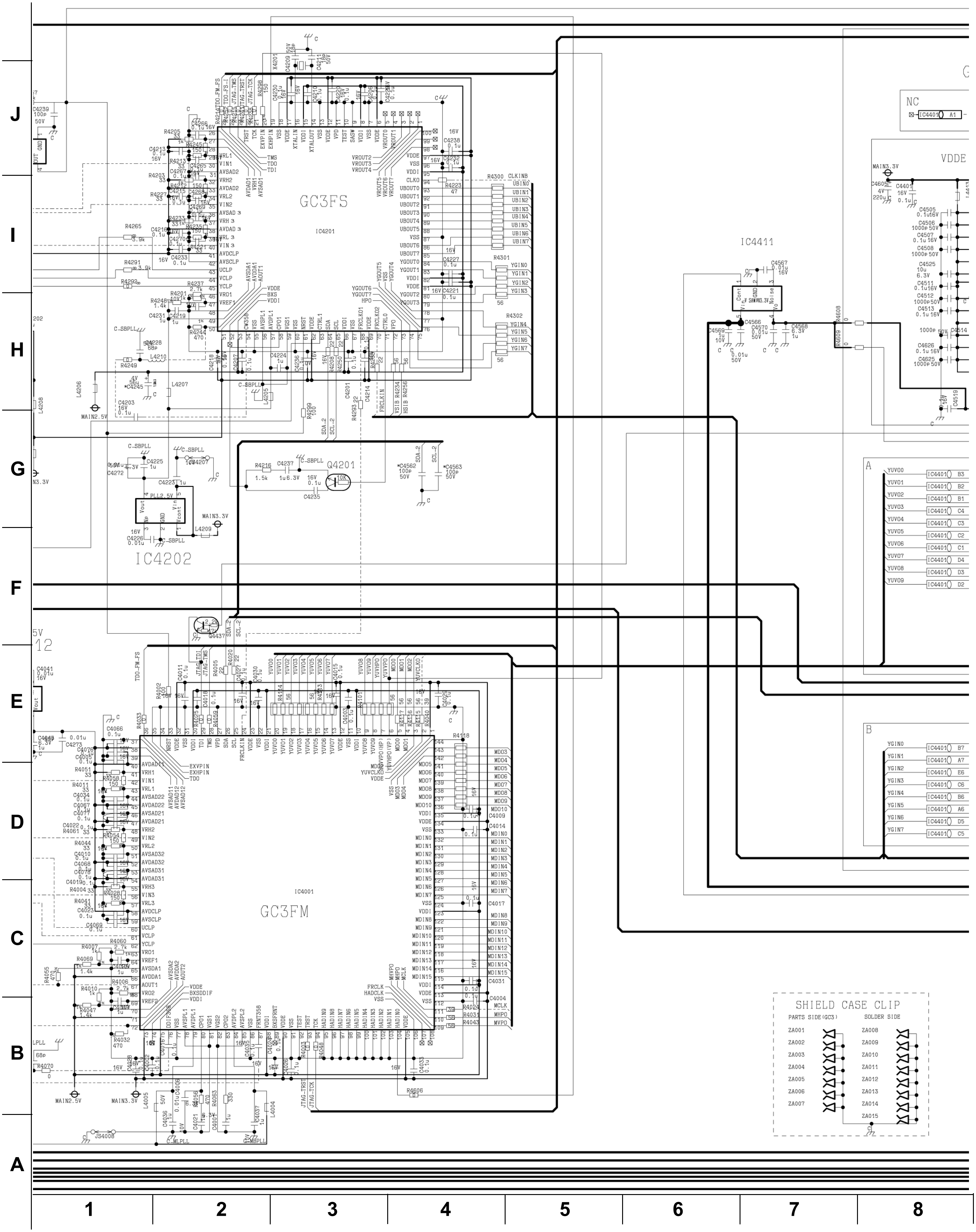
8
MAIN3.3V
R4303
0
R4257
1k
C4241
16V
0.1u
C4239
100p
50V
IC4205
C4240
0.015u
50V
MAIN9V
C4242
1u
Q4204
R4266
820
C4247
6.3V
1u
C4243
6.3V
1u
R4260
33
R4270
0
PB
PR
Y
B8-0_SPB
R4267
470
R4268
3.6k
C4246
12p
50V
Q4202
R4258
470
Q4206
R4274
820
C4254
6.3V
1u
C4249
6.3V
1u
R4279
33
C4259
10V
1u
R4280
B8-0_SPR
R4271
470
R4276
3.6k
C4250
50V
12p
Q4205
R4278
470
IC4203
C4204
1u
C4234
0.1u
C4202
1u
C4271
0.01u
C4217
0.1u
L4208
L4204
L4206
MAIN2.5V
Q4209
Q4207
Q4208
Q4210
R4283
680
C4255
10u
6.3V
R4281
33
C4260
10V
1u
R4290
0
R4282
330
B8-0_SY
CL3001
R4294
330
R4289
150
R4284
0
*C4256
47p
L4203
*C4258
39p
*C4257
39p
R4288
100
R4285
2.2k
R4286
330
R4287
0
R4296
768
R4297
1k
*Q1107
SUB5V
*R1110
470
*R1134
1k
CC_CVBS1
*R1111
470
*Q1108
*R1146
1k
CC_CVBS0
C_SBPLL
L4210
R4249
*C4245
C4203
C4225
C4272
C4226
IC42
B7-0_MPB
B7-0_MPR
B7-0_MY
CL3002
Q4008
Q4004
R4089
820
C4061
6.3V
1u
C4046
6.3V
1u
R4094
33
C4057
C4065
47u
16V
R4112
0
R4092
470
R4080
470
R4098
3.6k
C4047
22p
50V
AD2.5V
IC4012
L4007
C4041
0.01u
16V
C4042
1u
C4048
6.3V
C4273
TDO-FM-FS
Q4007
Q4002
R4072
820
C4054
6.3V
1u
C4048
6.3V
1u
R4079
33
C4049
10V
1u
R4111
0
R4084
470
GUARD_PR
R4097
470
R4082
3.6k
C4051
22p
50V
R4102
3.9k
R4103
3.9k
R4104
Q4001
Q4003
Q4005
R4096
150
R4076
470
R4093
0
C4044
15p
L4002
C4062
15p
50V
R4078
0
R4095
330
R4073
1.33k
R4075
680
C4060
10u
6.3V
R4074
33
C4053
10V
1u
R4110
0
R4087
330
R4090
330
IC4011
MAIN3.3V
L4006
C_MBPLL
C4038
0.01u
16V
PLL2.5V
C4039
1u
C4040
1u
6.3V
C4274
0.01u
50V
JS4009
C4070
C4071
C4072
C4073
C4074
C4075
C4020
L4008
R4039
0
C_MLPLL
C4032
68p
L4009
R4070
0
JS4008
MAIN2.5V
L4005
R4033
R4002
AVDAD11
VRH1
VIN1
VRL1
AVSAD22
AVDAD22
AVSAD21
AVDAD21
VRH2
VIN2
VRL2
AVSAD32
AVDAD32
AVSAD31
AVDAD31
VRH3
VIN3
VRL3
AVDCLP
AVSCLP
UCLP
VCLP
YCLP
VRO1
VREF1
AVSDA1
AVDDA1
AOUT1
VRO2
VREF2
R4051
R4011
R4058
R4061
R4054
R4044
R4004
R4041
R4028
R4060
R4007
R4069
R4055
R4006
R4010
R4047
R4032
470
HDMI_R
HDMI_L
ATSC/TV1_R
ATSC/TV1_L
MAIN_L
MAIN_R
R3130
220
R3131
220
SCL-1
SDA-1
C3072
22u
16V
IC3002
R2
L2
R1
L1
VCC
LOUT1
ROUT1
LOUT2
ROUT2
LOUT3
ROUT3
GND
SCL
SDA
ADR
MUTE
BIAS
L3
R3
L4
R4
L5
R5
L6
R6
L7
R7
L8
R8
L9
R9
L10
R10
L11
R11
*C3031
*C3053
AV3_L
AV3_R
AV2_L
AV2_R
AV1_L
AV1_R
D2_L
D2_R
D1_L
D1_R
DVI_L
DVI_R


J
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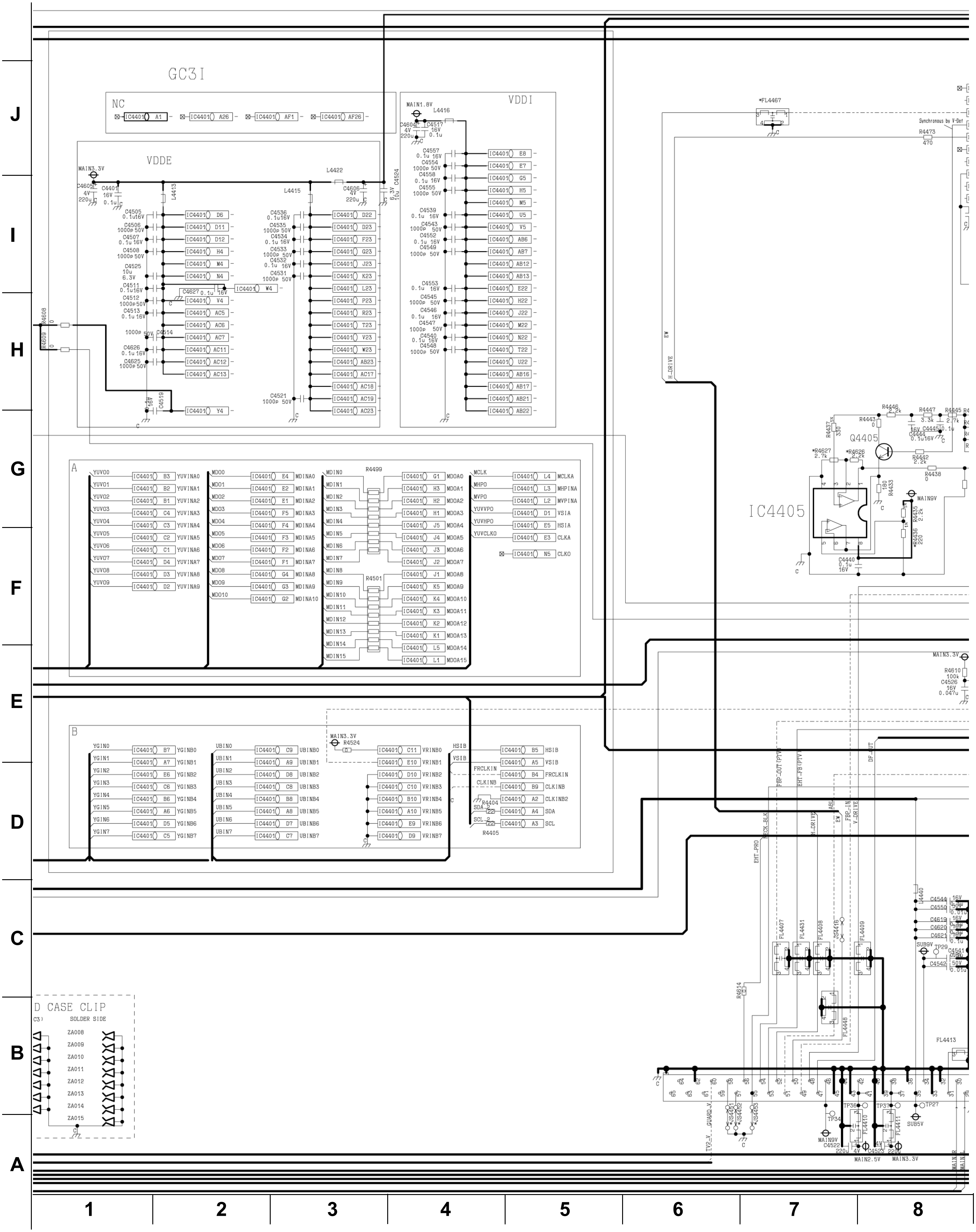
GC3FS
IC4201
GC3FM
IC4001
IC4202
PLL2.5V
IC4411
V SAW/H3.3V
Q4201
Q4437
NC
VDDE
MAIN3.3V
MAIN2.5V
C_SBPLL
C_MLPLL
C_MBPLL
SDA_2
SCL_2
CLKINB
R4300
R4301
R4302
R4118
UBIN0
UBIN1
UBIN2
UBIN3
UBIN4
UBIN5
UBIN6
UBIN7
YGIN0
YGIN1
YGIN2
YGIN3
YGIN4
YGIN5
YGIN6
YGIN7
YUVO0
YUVO1
YUVO2
YUVO3
YUVO4
YUVO5
YUVO6
YUVO7
YUVO8
YUVO9
MDO3
MDO4
MDO5
MDO6
MDO7
MDO8
MDO9
MDO10
MDIN0
MDIN1
MDIN2
MDIN3
MDIN4
MDIN5
MDIN6
MDIN7
MDIN8
MDIN9
MDIN10
MDIN11
MDIN12
MDIN13
MDIN14
MDIN15
MCLK
MHPO
MVPO
JTAG_TRST
JTAG_TCK
TDO_FM_FS
SHIELD CASE CLIP
PARTS SIDE(GC3)
SOLDER SIDE
ZA001
ZA002
ZA003
ZA004
ZA005
ZA006
ZA007
ZA008
ZA009
ZA010
ZA011
ZA012
ZA013
ZA014
ZA015


GC3I
NC
IC4401 A1
IC4401 A26
IC4401 AF1
IC4401 AF26
VDDE
VDDI
MAIN3.3V
MAIN1.8V
L4413
L4415
L4416
L4422
C4524
IC4401 W4
IC4401 Y4
R4608
R4609
A
YUVO0
YUVO1
YUVO2
YUVO3
YUVO4
YUVO5
YUVO6
YUVO7
YUVO8
YUVO9
MDO0
MDO10
MDIN0
MDIN15
R4499
R4501
MCLK
MHPO
MVPO
YUVVPO
YUVHPO
YUVCLKO
MCLKA
MHPINA
MVPINA
VSIA
HSIA
CLKA
CLKO
B
YGIN0
YGIN7
UBIN0
UBIN7
R4524
HSIB
VSIB
FRCLKIN
CLKINB
CLKINB2
SDA
SCL
R4404
R4405
D CASE CLIP
SOLDER SIDE
ZA008
ZA009
ZA010
ZA011
ZA012
ZA013
ZA014
ZA015
*FL4467
Synchronous by V-Def
R4473
470
EW
H-DRIVE
Q4405
IC4405
R4446
R4447
R4445
R4443
R4437
R4442
R4438
*R4627
*R4626
R4433
R4435
R4436
C4440
MAIN9V
MAIN3.3V
R4610
C4526
FBP_OUT(PTV)
EHT_FB(PTV)
DF_OUT
EHT_PRO
ECK_BLK
H-DRIVE
ABL
FBP_IN
V_DRIVE
FL4407
FL4431
FL4408
FL4409
FL4448
FL4413
JS4416
R4614
L4440
SUB9V
TP29
TP34
TP36
TP37
TP27
SUB5V
MAIN9V
MAIN2.5V
MAIN3.3V
FL4410
FL4411
C4522
C4523
TV2_V_GUARD_V
J
I
H
G
F
E
D
C
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A
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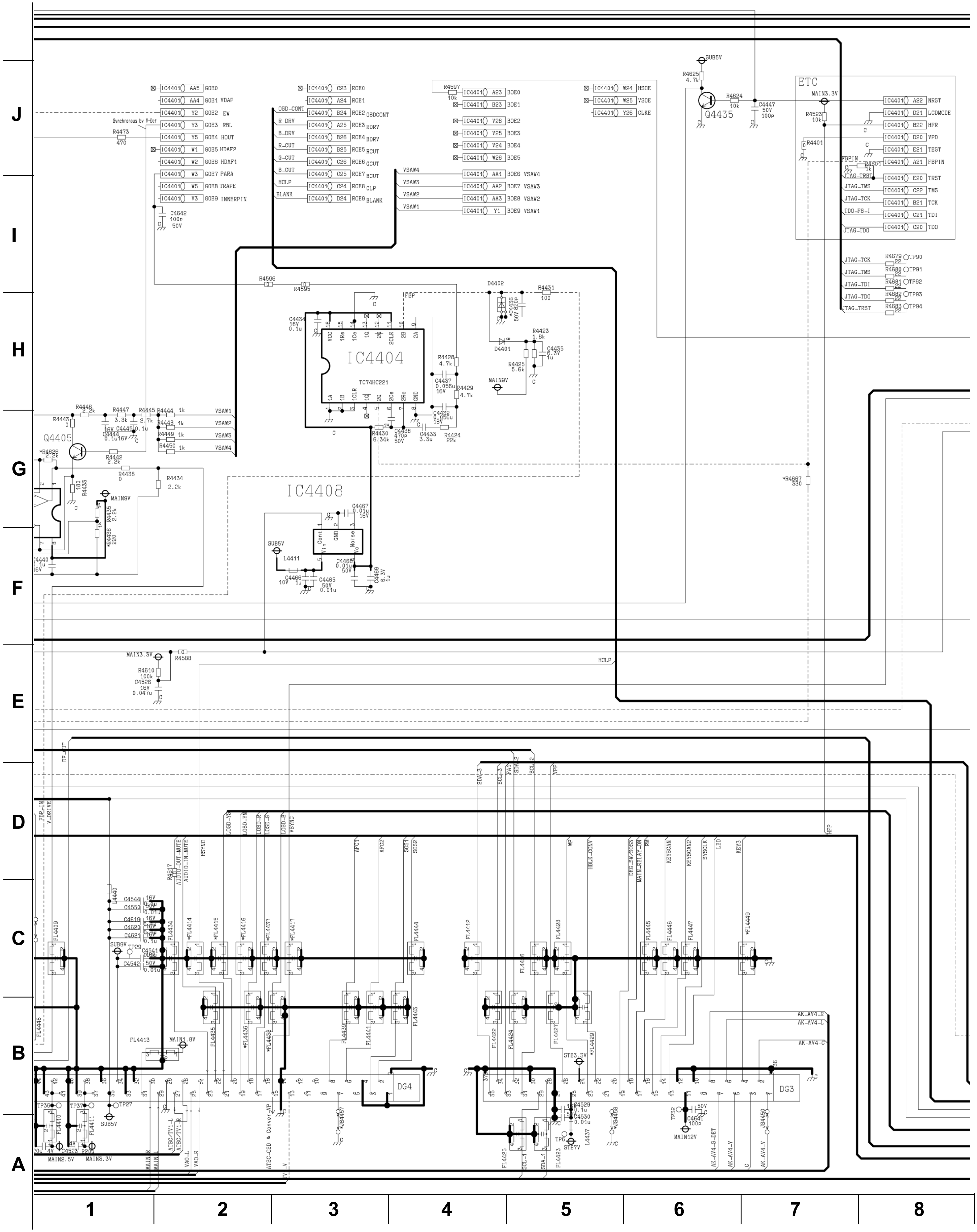
J
I
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D
C
B
A
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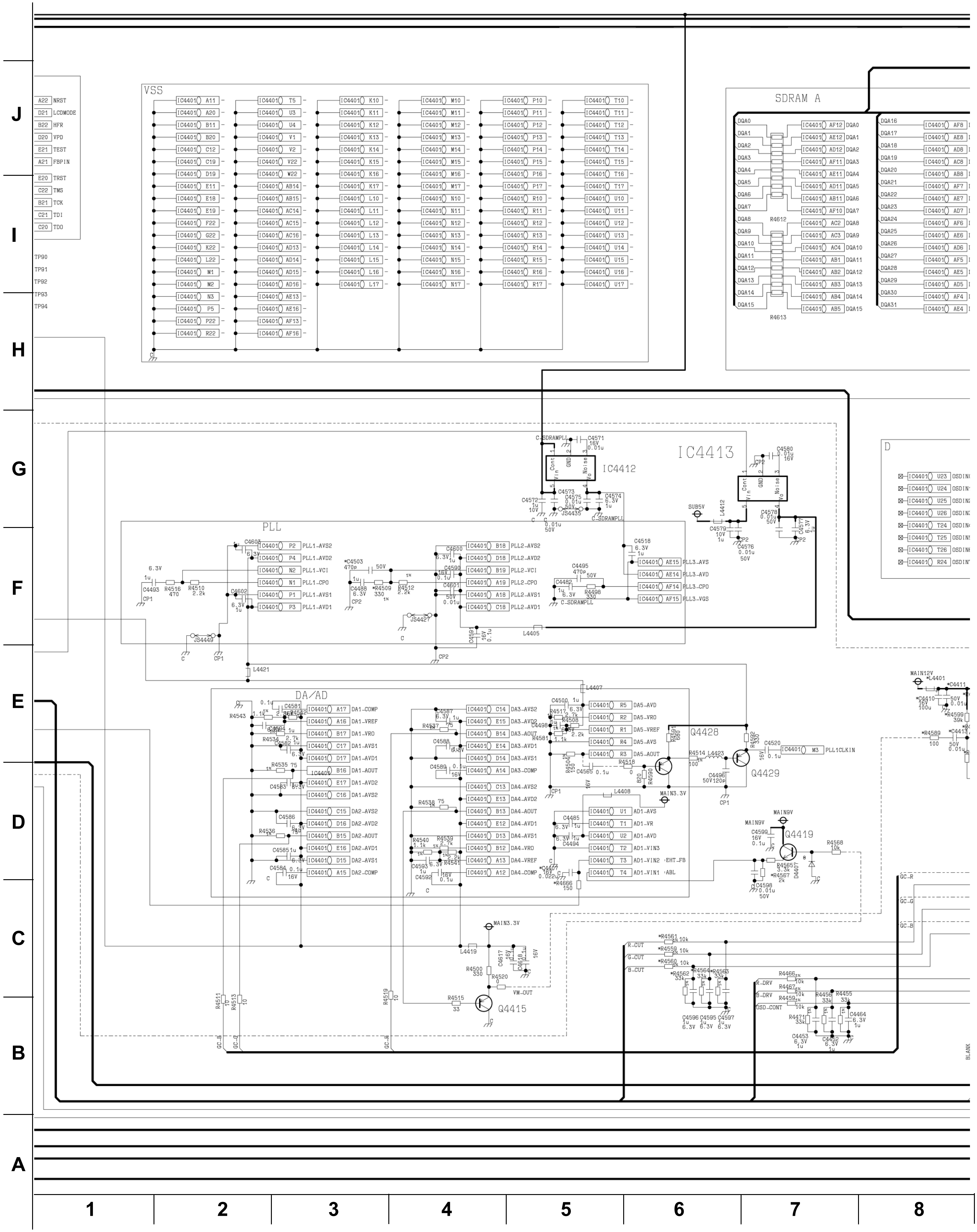
5
6
7
8
IC4404
TC74HC221
IC4408
Q4405
Q4435
ETC
MAIN3.3V
SUB5V
MAIN9V
SUB9V
MAIN1.8V
MAIN2.5V
MAIN12V
STB3.3V
STB7V
Synchronous by V-Def
OSD_CONT
R_DRV
B_DRV
R_CUT
G_CUT
B_CUT
HCLP
BLANK
VSAW1
VSAW2
VSAW3
VSAW4
JTAG_TRST
JTAG_TMS
JTAG_TCK
JTAG_TDI
JTAG_TDO
TDO_FS_I
FBPIN
HFP
DG4
DG3
AK_AV4_R
AK_AV4_L
AK_AV4_C
AK_AV4_S_DET
AK_AV4_Y
AK_AV4_V
HSYNC
VSYNC
LOSD_YS
LOSD_YM
LOSD_R
LOSD_G
LOSD_B
AFC1
AFC2
SOS1
SOS2
SDA_3
SCL_3
SDA_2
SCL_2
VPP
HBLK_CONV
DEG_SW/SOS3
MAIN_RELAY_ON
RM
KEYSCAN
KEYSCAN2
SYSCLK
LED
KEY3
FBP_IN
V_DRIVE
DF_OUT
AUDIO_OUT_MUTE
AUDIO_IN_MUTE
ATSC/TV1_L
ATSC/TV1_R
VAO_L
VAO_R
MAIN_R
MAIN_L
ATSC_OSD & Conver_VP
TV_V
SCL_1
SDA_1


VSS
SDRAM A
IC4413
IC4412
PLL
DA/AD
D
Q4428
Q4429
Q4415
Q4419
D4407
SUB5V
MAIN3.3V
MAIN9V
MAIN12V
C_SDRAMPLL
JS4435
JS4427
JS4449
L4405
L4407
L4408
L4412
L4419
L4421
L4423
PLL1CLKIN
VM-OUT
R-CUT
G-CUT
B-CUT
R-DRV
B-DRV
OSD-CONT
GC-R
GC-G
GC-B
EHT-FB
ABL
NRST
LCDMODE
HFR
VPD
TEST
FBPIN
TRST
TMS
TCK
TDI
TDO
TP90
TP91
TP92
TP93
TP94
BLANK
J
I
H
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F
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C
B
A
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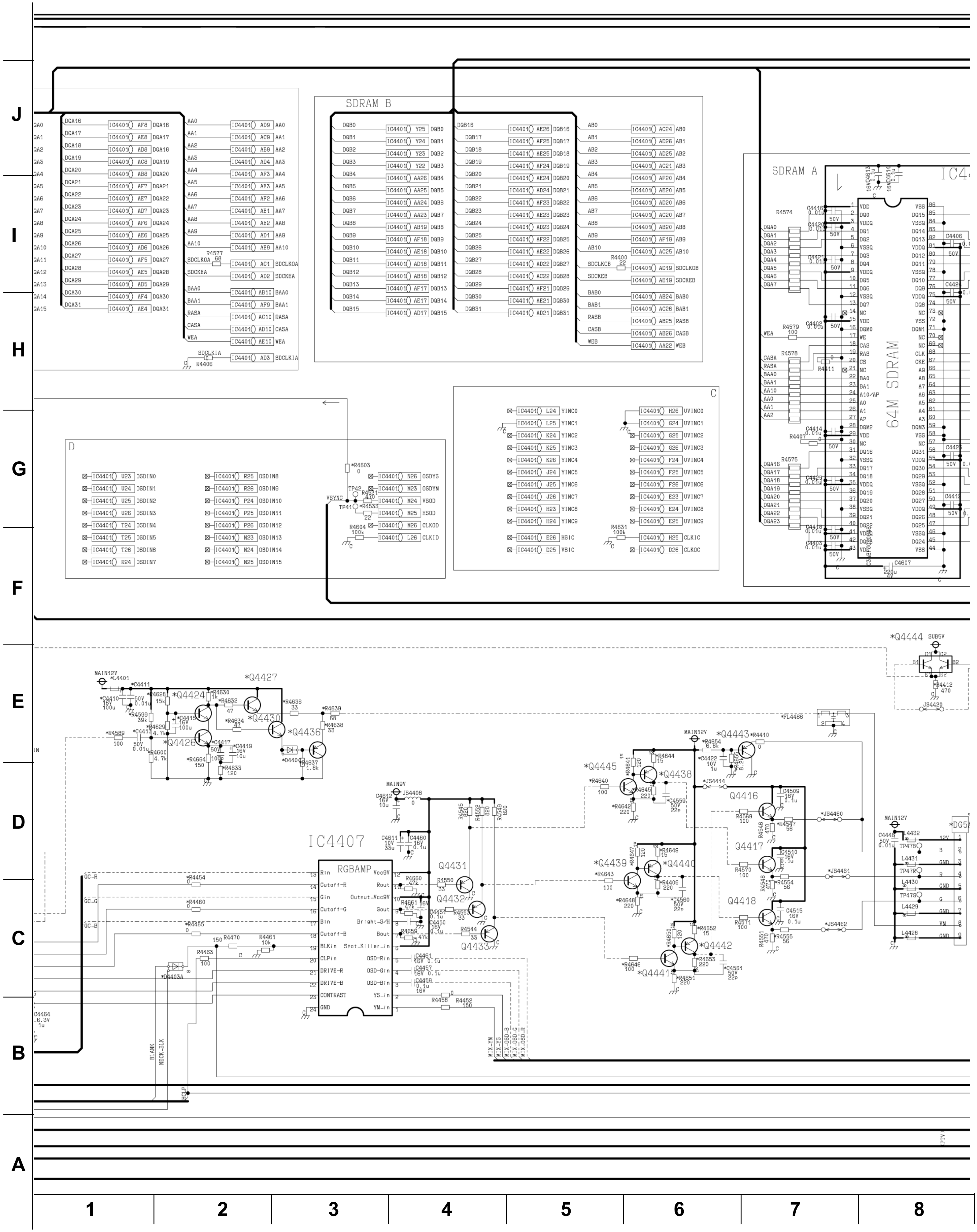
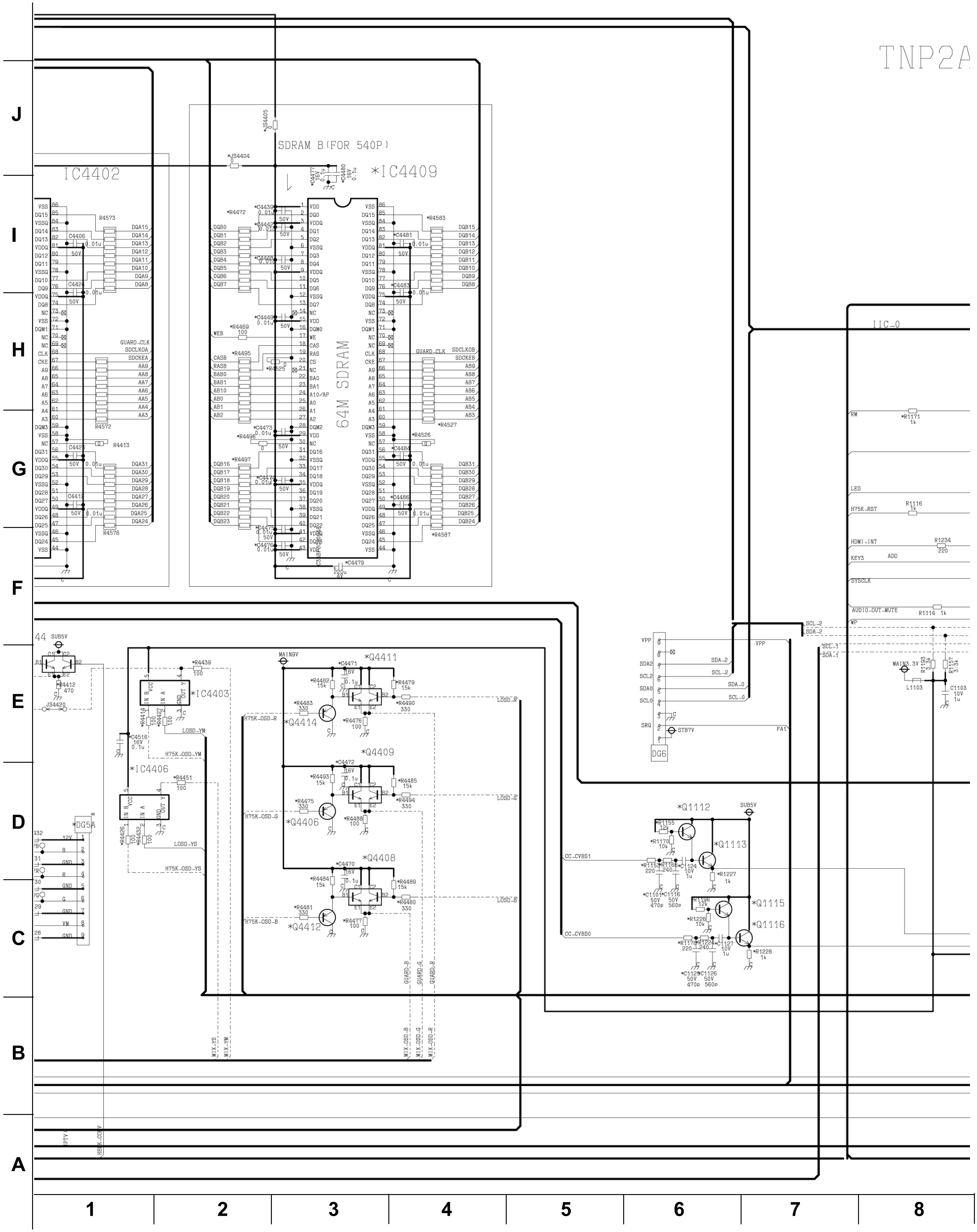


J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
SDRAM B
SDRAM A
IC4401
DQA16 … DQA31
AA0 AA1 AA2 AA3 AA4 AA5 AA6 AA7 AA8 AA9 AA10
SDCLKOA SDCKEA BAA0 BAA1 RASA CASA WEA
SDCLKIA
R4577 68
R4406
DQB0 … DQB31
AB0 … AB10
SDCLKOB SDCKEB BAB0 BAB1 RASB CASB WEB
R4400 22
R4574
R4579 100
R4578
R4411 0
R4407
R4575
64M SDRAM
C4607 220u 4V
C4406
D
C
OSDIN0 … OSDIN15
OSDYS OSDYM VSOD HSOD CLKOD CLKID
*R4603 0
TP42
TP41
R4531 470
*R4533 22
R4604 100k
VSYNC
YINC0 … YINC9
UVINC0 … UVINC9
HSIC VSIC
CLKIC CLKOC
R4631 100k
*Q4444
SUB5V
*R4412 470
JS4420
MAIN12V
*L4401
*C4411
*C4410 16V 100u
50V 0.01u
*R4628 15k
*R4599 39k
*Q4424
*R4630 1k
*R4632 47
*R4634 47
*Q4427
*Q4430
*R4636 33
*R4639 68
*R4638 33
*Q4436
*C4415 16V 100u
*R4629 4.7k
*Q4426
*R4589 100
*C4413 50V 0.01u
*R4600 4.7k
*C4417 50V 100p
*C4419 16V 10u
*R4664 150
*R4633 120
*D4404
*R4637 1.8k
*FL4466
MAIN9V
JS4408 0
C4612 16V 10u
C4611 10V 33u
C4460 16V 0.1u
IC4407
RGBAMP
Rin Cutoff-R Gin Cutoff-G Bin Cutoff-B BLKin CLPin DRIVE-R DRIVE-B CONTRAST GND
Vcc9V Rout Output-Vcc9V Gout Bright-S/H Bout Spot-Killer-in OSD-Rin OSD-Gin OSD-Bin YS-in YM-in
R4545 820
R4552 820
R4549 820
Q4431
Q4432
Q4433
R4550 33
R4553 33
R4544 33
R4660 47k
R4661 47k
R4659 47k
C4457 0.1u
C4450 16V 0.1u
C4461 16V 0.1u
C4457 16V 0.1u
C4459 0.1u 16V
R4458 0
R4452 150
GC-R
GC-G
GC-B
*R4454 0
*R4460 0
*R4465 0
R4470
R4461 10k
R4463 100
150
*D4403A
C4464 6.3V 1u
BLANK
NECK-BLK
HCLP
MIX-YM
MIX-YS
MIX-OSD-B
MIX-OSD-G
MIX-OSD-R
MAIN12V
*Q4443
*R4654 6.8k
*R4410 0
*C4422 10V 1u
*R4656 8.2k
*Q4445
*R4641 120
*R4644 15
*Q4438
*R4640 100
*R4645 220
*R4642 220
*C4559 50V 22P
*JS4414
Q4416
C4509 16V 0.1u
R4569 100
R4546 470
*R4547 56
*JS4460
Q4417
C4510 16V 0.1u
*Q4439
*R4647 120
*R4649 15
*Q4440
*R4643 100
*R4409 220
*R4648 220
*C4560 50V 22P
R4570 100
R4548 470
*R4554 56
*JS4461
Q4418
C4515 16V 0.1u
R4571 100
R4551 470
*R4555 56
*JS4462
*R4650 120
*R4652 15
*Q4442
*R4646 100
*Q4441
*R4653 220
*R4651 220
*C4561 50V 22P
MAIN12V
C4446 50V 0.01u
L4432 L4431 L4430 L4429 L4428
TP47B TP47R TP47G
12V B GND R GND G GND YM GND
*DG5

TNP2A
J
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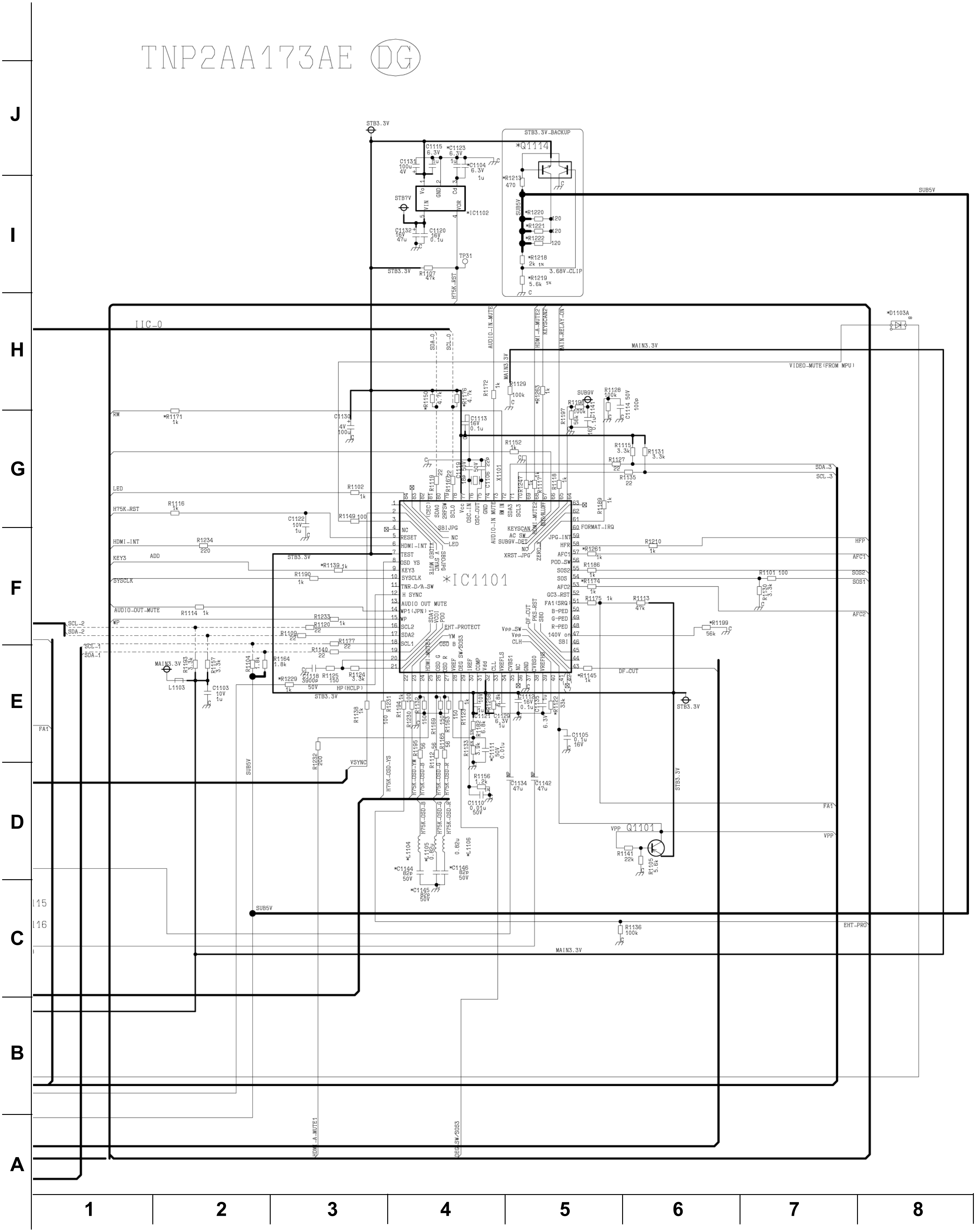
IC4402
SDRAM B(FOR 540P)
*IC4409
64M SDRAM
*JS4405
*JS4404
R4573
R4572
R4576
R4413
*R4583
*R4527
*R4587
*R4472
*R4469
*R4495
*R4525
*R4496
*R4497
*R4526
C4406
C4426
C4428
C4412
*C4477
*C4480
*C4439
*C4442
*C4446
*C4449
*C4473
*C4474
*C4475
*C4476
*C4479
220u 4V
*C4481
*C4483
*C4484
*C4486
DQA15
DQA14
DQA13
DQA12
DQA11
DQA10
DQA9
DQA8
GUARD-CLK
SDCLKOA
SDCKEA
DQA31
DQA24
DQB0
DQB7
WEB
CASB
RASB
BAB0
BAB1
AB10
AB0
AB1
AB2
DQB16
DQB23
DQB15
DQB8
SDCLKOB
SDCKEB
DQB31
DQB24
IIC-0
RM
*R1171 1k
LED
H75K-RST
R1116 1k
HDMI-INT
R1234 220
KEY3
ADD
SYSCLK
AUDIO-OUT-MUTE
R1114 1k
WP
SCL-2
SDA-2
SCL-1
SDA-1
MAIN3.3V
L1103
R1193 3.3k
R1157 3.3k
C1103 10V 1u
VPP
SDA2
SCL2
SDA0
SCL0
SRQ
STB7V
FA1
DG6
SUB5V
R4412 470
JS4420
*IC4403
*R4439 100
*C4516 16V 0.1u
*R4414
*R4427
LOSD-YM
H75K-OSD-YM
*IC4406
*R4451 100
*R4426
*R4432
LOSD-YS
H75K-OSD-YS
*DG5A
12V
B
GND
R
G
YM
MAIN9V
*Q4411
*C4471
*R4482 15k
*R4479 15k
*R4483 330
*R4490 330
*Q4414
*R4476 100
H75K-OSD-R
LOSD-R
*Q4409
*C4472
*R4493 15k
*R4485 15k
*R4475 330
*R4494 330
*Q4406
*R4488 100
H75K-OSD-G
LOSD-G
*Q4408
*C4470
*R4484 15k
*R4489 15k
*R4481 330
*R4480 330
*Q4412
*R4477 100
H75K-OSD-B
LOSD-B
GUARD-B
GUARD-G
GUARD-R
MIX-YS
MIX-YM
MIX-OSD-B
MIX-OSD-G
MIX-OSD-R
*Q1112
*Q1113
*R1155 12k
*R1170 10k
CC-CVBS1
*R1153 220
*R1166 240
*C1124 10V 1u
*R1227 1k
*C1101 50V 470p
*C1116 50V 560p
*Q1115
*Q1116
*R1196 12k
*R1226 10k
CC-CVBS0
*R1176 220
*R1229 240
*C1127 10V 1u
*R1228 1k
*C1125 50V 470p
*C1126 50V 560p
PTV
HBBK-CONV

TNP2AA173AE (DG)



STB3.3V
STB3.3V_BACKUP
*Q1114
*R1213 470
SUB5V
*R1220 120
*R1221 120
*R1222 120
*R1218 2k 1%
*R1219 5.6k 1%
3.68V_CLIP
C1115 6.3V
*C1123 6.3V
C1131 100u 4V
C1104 6.3V 1u
STB7V
*IC1102
VIN GND VOR Vo Cd
C1132 16V 47u
C1120 16V 0.1u
TP31
R1107 47k
H75K_RST
AUDIO-IN-MUTE
HDMI-A-MUTE2
KEYSCAN2
MAIN-RELAY-ON
*D1103A
IIC-0
SDA-0
SCL-0
MAIN3.3V
VIDEO-MUTE(FROM MPU)
*R1150 4.7k
*R1176 4.7k
R1172 1k
R1129 100k
*R1263 1k
SUB9V
R1198 100k
R1128 100k
C1114 50V 100p
C1130 4V 100u
C1113 16V 0.1u
RM
*R1171 1k
R1152 1k
R1115 3.3k
R1131 3.3k
R1127 22
R1135 22
SDA-3
SCL-3
X1101
LED
R1102 1k
H75K-RST
R1116 1k
R1149 100
C1122 10V 1u
HDMI-INT
R1234 220
KEY3
ADD
SYSCLK
*R1139 1k
R1190 1k
AUDIO-OUT-MUTE
R1114 1k
WP
SCL-2
SDA-2
SCL-1
SDA-1
R1233 1k
R1120 22
R1109 22
R1177 22
R1140 22
*IC1101
NC RESET HDMI-INT TEST OSD YS KEY3 SYSCLK TNR-D/A-SW H SYNC AUDIO OUT MUTE WP1(JPN) WP SCL2 SDA2 SCL1
CEC1 SDA0 2RFSW SCL0 Vcc OSC-IN OSC-OUT GND RMIN AUDIO-IN MUTE SDA3 SCL3 KEYSCAN AC SW SUB9V-DET NC XRST-JPG ZERO-X
JPG-INT HFR AFC1 POD-SW SOS2 SOS AFC2 GC3-RST FA1(SRQ) B-PED G-PED R-PED 140V on SBI
EHT-PROTECT YM OSD B OSD G OSD R VREF DEG SW/SOS3 IREF COMP Vdd CLL VREFLS CVBS1 NC GND CVBS0 VREFHS
Vpp-SW Vpp CLH DF-CUT PKS-RST SBO
FORMAT-IRQ
R1210 1k
HFP
AFC1
*R1261 1k
R1186 1k
SOS2
SOS1
R1101 100
R1130 3.3k
*R1174 1k
AFC2
R1175 1k
R1113 47k
*R1199 56k
*R1145 1k
DF_CUT
MAIN3.3V
R1193 3.3k
R1157 3.3k
R1104 1.8k
R1164 1.8k
L1103
C1103 10V 1u
*R1229 1k
C1118 3900p 50V
R1125 150
R1124 3.3k
HP(HCLP)
R1138 1k
R1231 100
R1232 200
VSYNC
SUB5V
FA1
H75K-OSD-YS
H75K-OSD-YM
H75K-OSD-B
H75K-OSD-G
H75K-OSD-R
R1195 56
R1112 56
R1165 56
*L1104
*L1105 0.82u
*L1106 0.82u
*C1144 82p 50V
*C1145 82p 50V
*C1146 82p 50V
R1133
C1111 50V 0.01u
R1156 1.2k
C1110 0.01u 50V
C1134 47u
C1142 47u
C1105 0.1u 16V
C1112 16V 0.1u
*R1122 33k
STB3.3V
VPP
Q1101
R1141 22k
R1105 5.6k
R1136 100k
EHT-PRO
MAIN3.3V
SUB5V
HDMI-A-MUTE1
DEG-SW/SOS3
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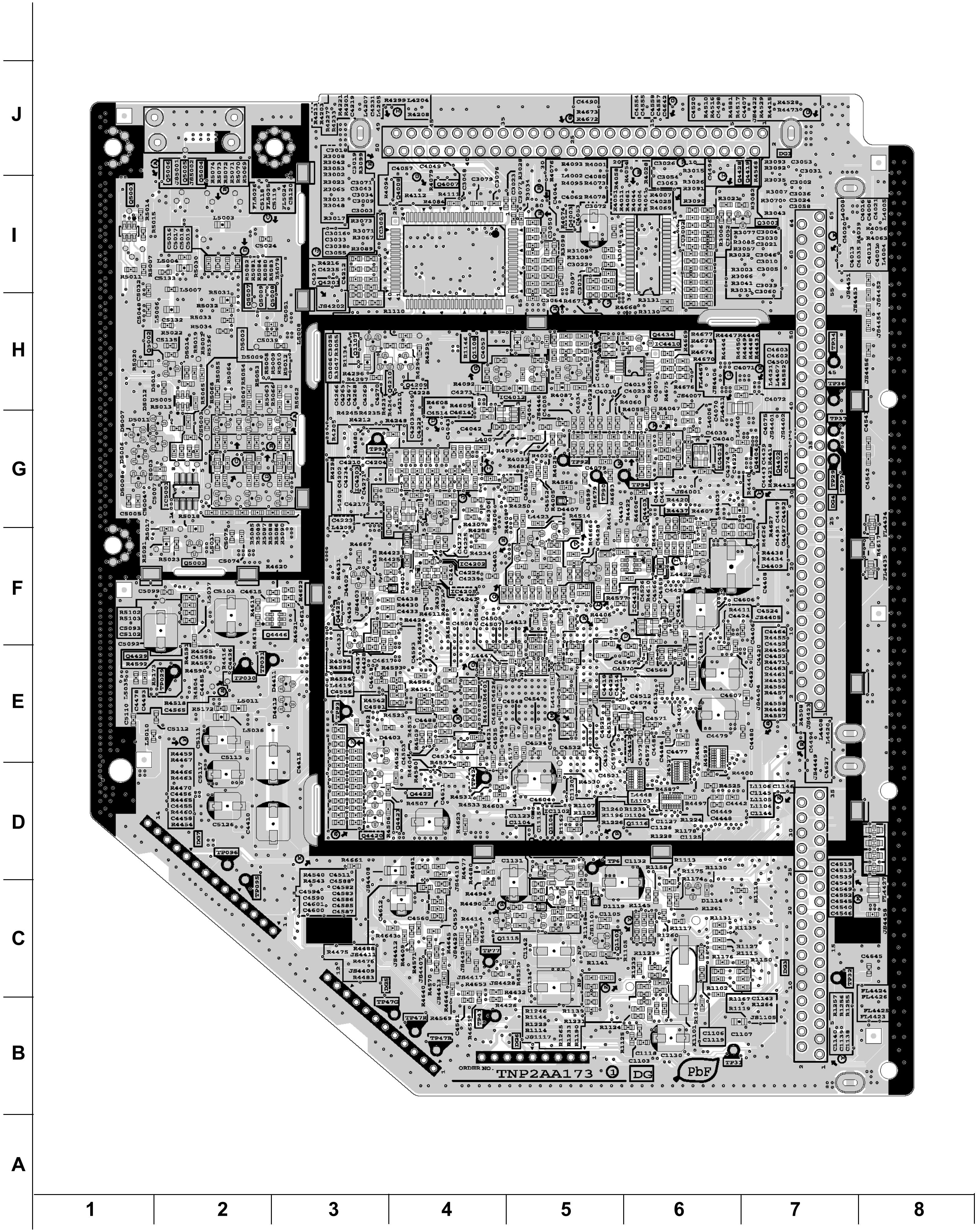
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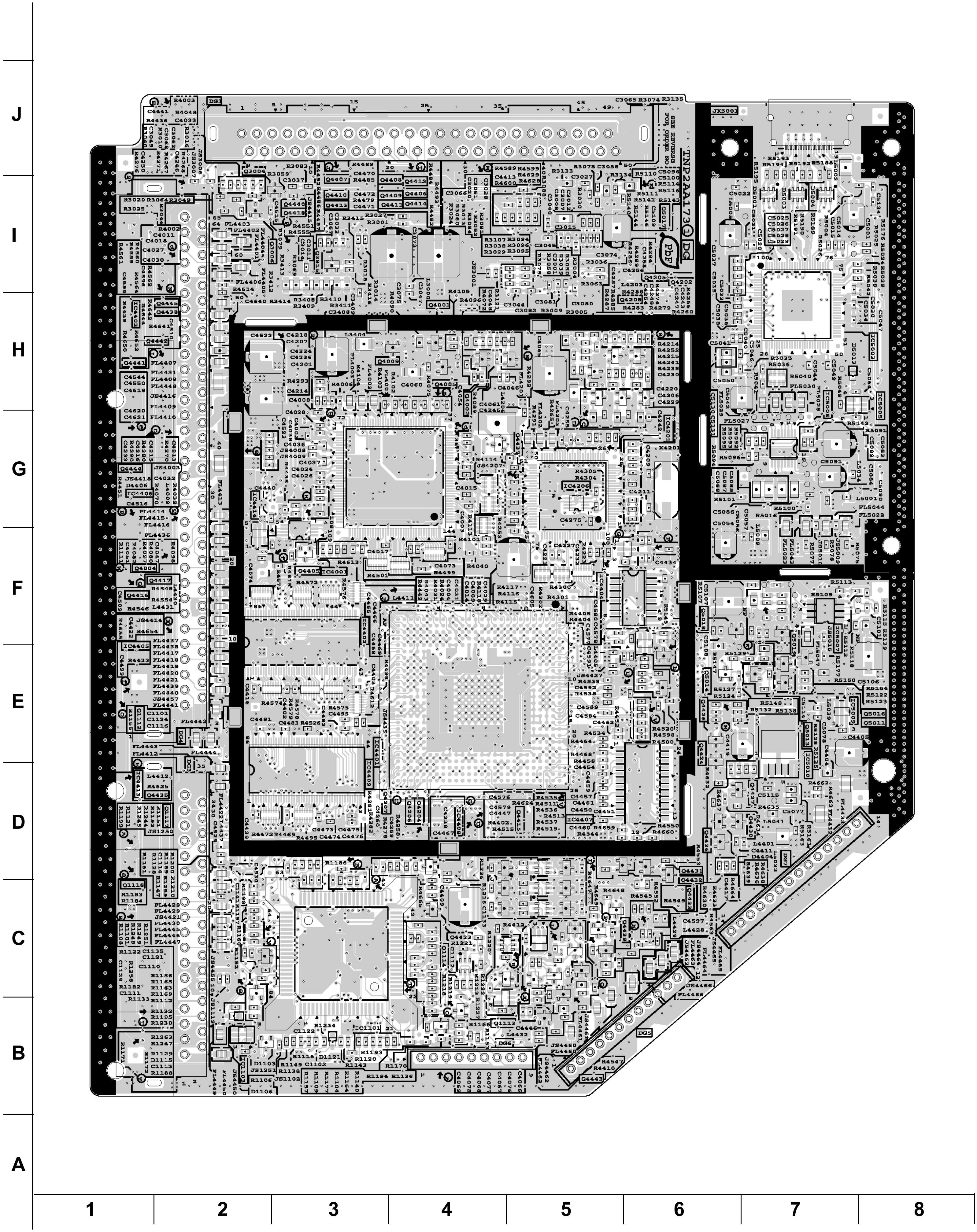
ORDER NO. TNP2AA173
DG
PbF

DG-PCB BOTTOM VIEW **TNP2AA173** **PT-53X54J**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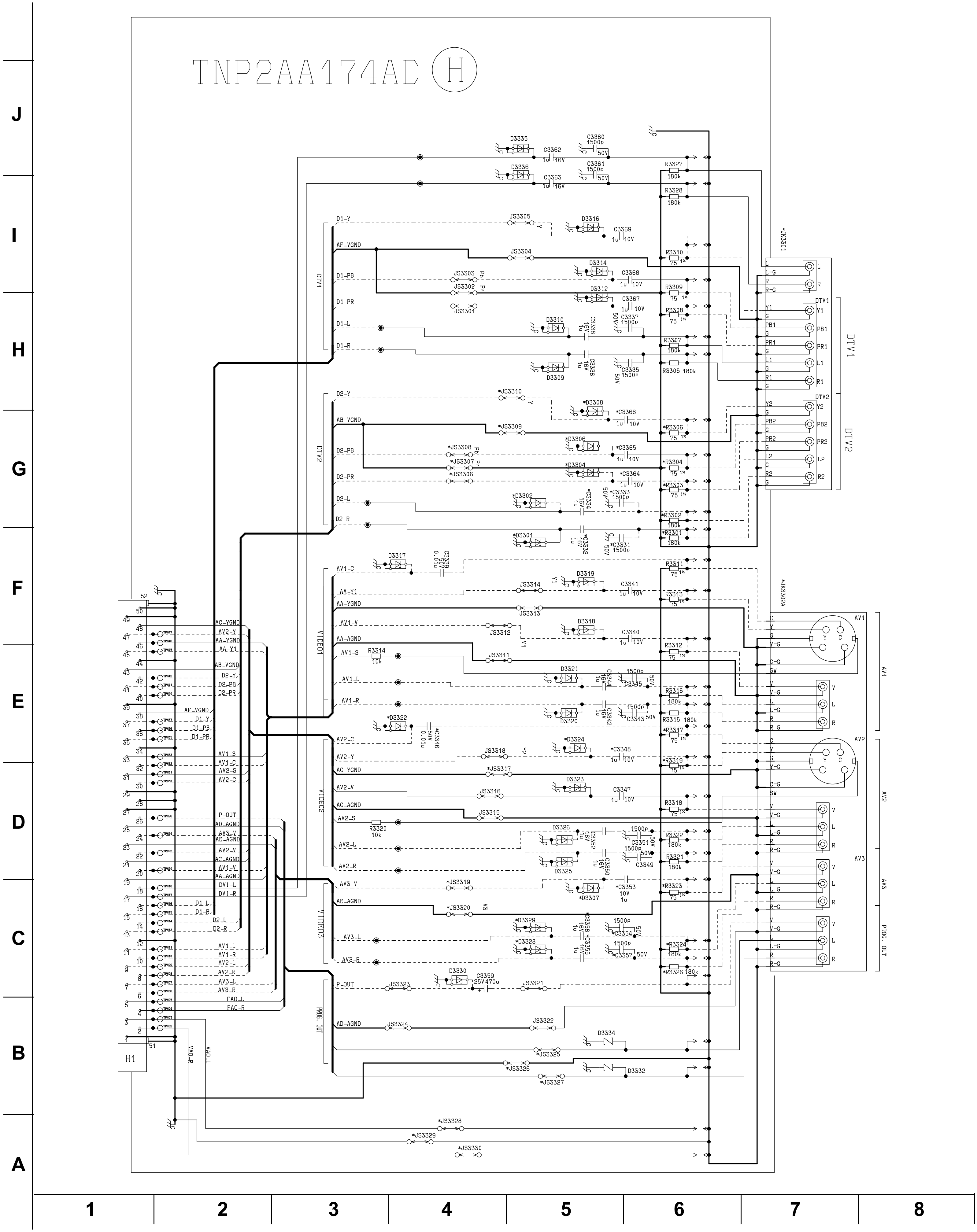
TNP2AA173 DG
SEE REVERSE FOR ORDER NO.
JK5001
DG1
DG3
DG4
DG5
DG6
DG7
IC4001
IC4003
IC4004
IC4206
IC4401
IC4402
IC4403
IC4404
IC4405
IC4406
IC4407
IC4408
IC4409
IC4410
IC4413
IC1101
IC5003
IC5005
IC5007
IC5009
IC5010

DG-PCB TOP VIEW TNP2AA173 PT-53X54J


TNP2AA174AD
H
J
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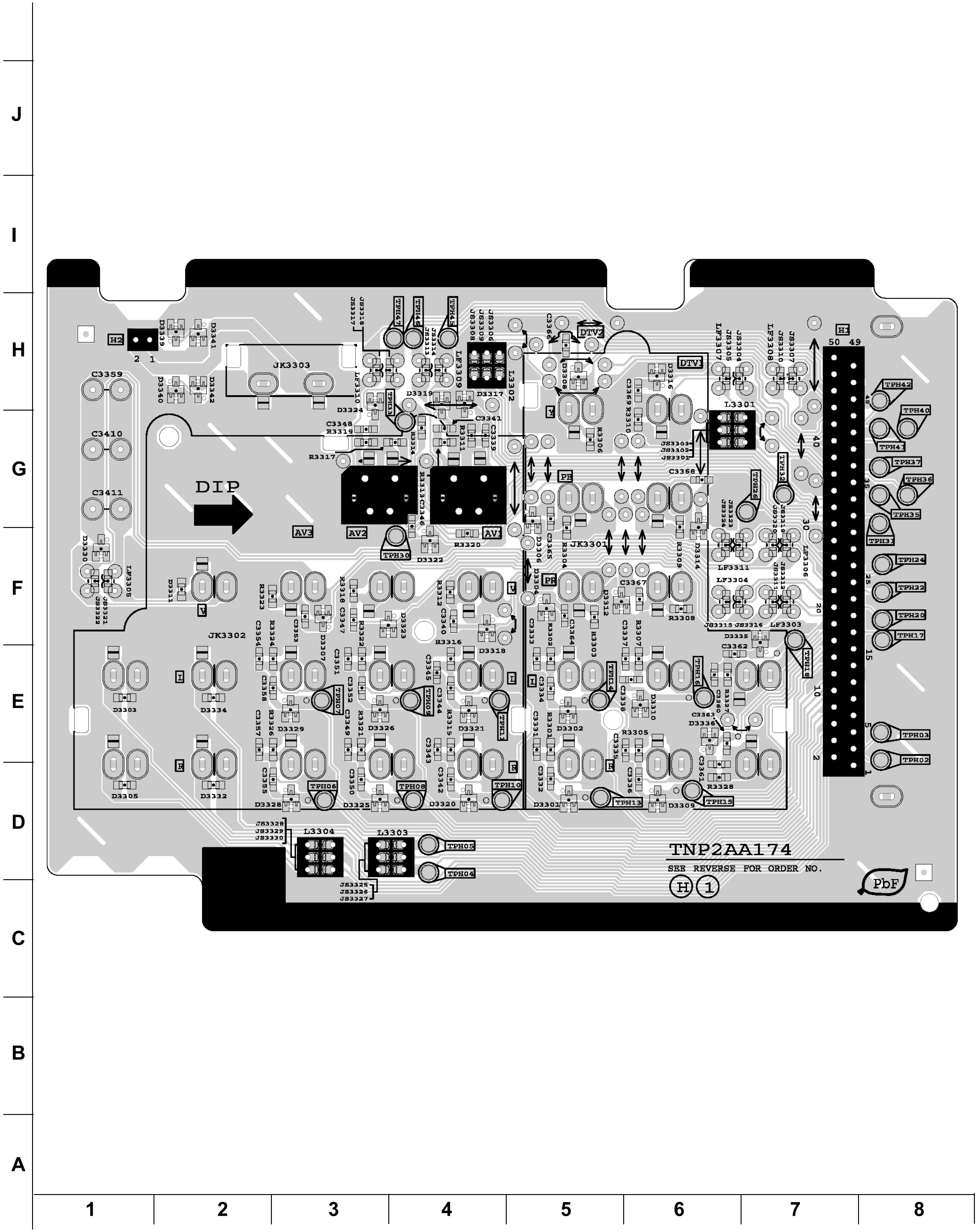
H1
DTV1
DTV2
VIDEO1
VIDEO2
VIDEO3
PROG. OUT
*JK3301
*JK3302A
AV1
AV2
AV3
D1-Y
AF-VGND
D1-PB
D1-PR
D1-L
D1-R
D2-Y
AB-VGND
D2-PB
D2-PR
D2-L
D2-R
AV1-C
AA-Y1
AA-YGND
AV1-V
AA-AGND
AV1-S
AV1-L
AV1-R
AV2-C
AV2-Y
AC-YGND
AV2-V
AC-AGND
AV2-S
AV2-L
AV2-R
AV3-V
AE-AGND
AV3-L
AV3-R
P-OUT
AD-AGND
FAO-L
FAO-R
VAO-R
VAO-L
D3335
D3336
C3360 1500p 50V
C3361 1500p 50V
C3362 1u 16V
C3363 1u 16V
R3327 180k
R3328 180k
JS3305
D3316
C3369 1u 10V
JS3304
R3310 75 1%
JS3303
JS3302
JS3301
D3314
C3368 1u 10V
D3312
C3367 1u 10V
R3309 75 1%
R3308 75 1%
D3310
C3338 16V 1u
C3337 50V 1500p
R3307 180k
C3336 16V 1u
C3335 50V 1500p
R3305 180k
D3309
*JS3310
*D3308
*C3366 1u 10V
*JS3309
*R3306 75 1%
*JS3308
*JS3307
*JS3306
*D3306
*C3365 1u 10V
*D3304
*C3364 1u 10V
*R3304 75 1%
*R3303 75 1%
*D3302
*C3334 16V 1u
*C3333 50V 1500p
*R3302 180k
*D3301
*C3332 16V 1u
*C3331 50V 1500p
*R3301 180k
D3317
C3339 50V 0.01u
D3319
JS3314
C3341 1u 10V
R3311 75 1%
JS3313
R3313 75 1%
JS3312
D3318
C3340 1u 10V
R3312 75 1%
R3314 10k
JS3311
D3321
C3344 16V 1u
C3345 1500p 50V
R3316 180k
D3320
C3342 16V 1u
C3343 1500p 50V
R3315 180k
*D3322
*C3346 50V 0.01u
*D3324
JS3318
*C3348 1u 10V
*R3317 75 1%
*R3319 75 1%
*JS3317
D3323
JS3316
C3347 1u 10V
R3318 75 1%
JS3315
R3320 10k
D3326
C3352 16V 1u
C3351 1500p 50V
R3322 180k
D3325
C3350 16V 1u
C3349 1500p 50V
R3321 180k
*JS3319
*D3307
*C3353 10V 1u
*R3323 75 1%
*JS3320
*D3329
*C3358 16V 1u
*C3354 1500p 50V
*D3328
*C3355 16V 1u
*C3357 1500p 50V
*R3324 180k
*R3326 180k
D3330
C3359 25V 470u
JS3323
JS3321
JS3324
JS3322
D3334
*JS3325
*JS3326
D3332
*JS3327
*JS3328
*JS3329
*JS3330
Y1
PB1
PR1
L1
R1
Y2
PB2
PR2
L2
R2
V
L
R
Y
C



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D3339
D3341
D3340
D3342
JK3303
C3359
C3410
C3411
DIP
AV3
AV2
AV1
D3330
LF3305
JS3321
JS3322
D3311
JK3302
JS3318
JS3317
TPH47
TPH46
TPH45
JS3314
JS3313
LF3309
JS3306
JS3309
JS3308
L3302
LF3310
D3324
TPH33
D3319
D3317
C3341
C3348
R3319
R3317
R3314
R3311
C3339
R3313
C3346
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C3366
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DTV1
D3308
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C3369
R3310
R3306
LF3307
JS3305
JS3304
LF3308
JS3310
JS3307
L3301
JS3303
JS3302
JS3301
C3368
TPH26
TPH32
JS3323
JS3324
JS3320
JS3319
LF3311
LF3306
LF3304
JS3312
JS3311
JS3315
JS3316
LF3303
H1
50 49
45
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35
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2 1
TPH42
TPH40
TPH41
TPH37
TPH36
TPH35
TPH31
TPH24
TPH22
TPH20
TPH17
TPH18
TPH03
TPH02
Y
PB
PR
JK3301
D3306
C3365
R3304
R3309
D3314
D3304
C3367
D3312
R3308
V
R3323
R3318
C3347
R3312
D3323
C3340
R3316
D3318
C3354
R3324
C3353
D3307
R3322
C3351
C3345
C3358
C3352
TPH07
TPH09
C3344
TPH11
C3357
R3326
C3349
R3321
R3315
D3329
D3326
D3321
C3343
C3355
C3350
C3342
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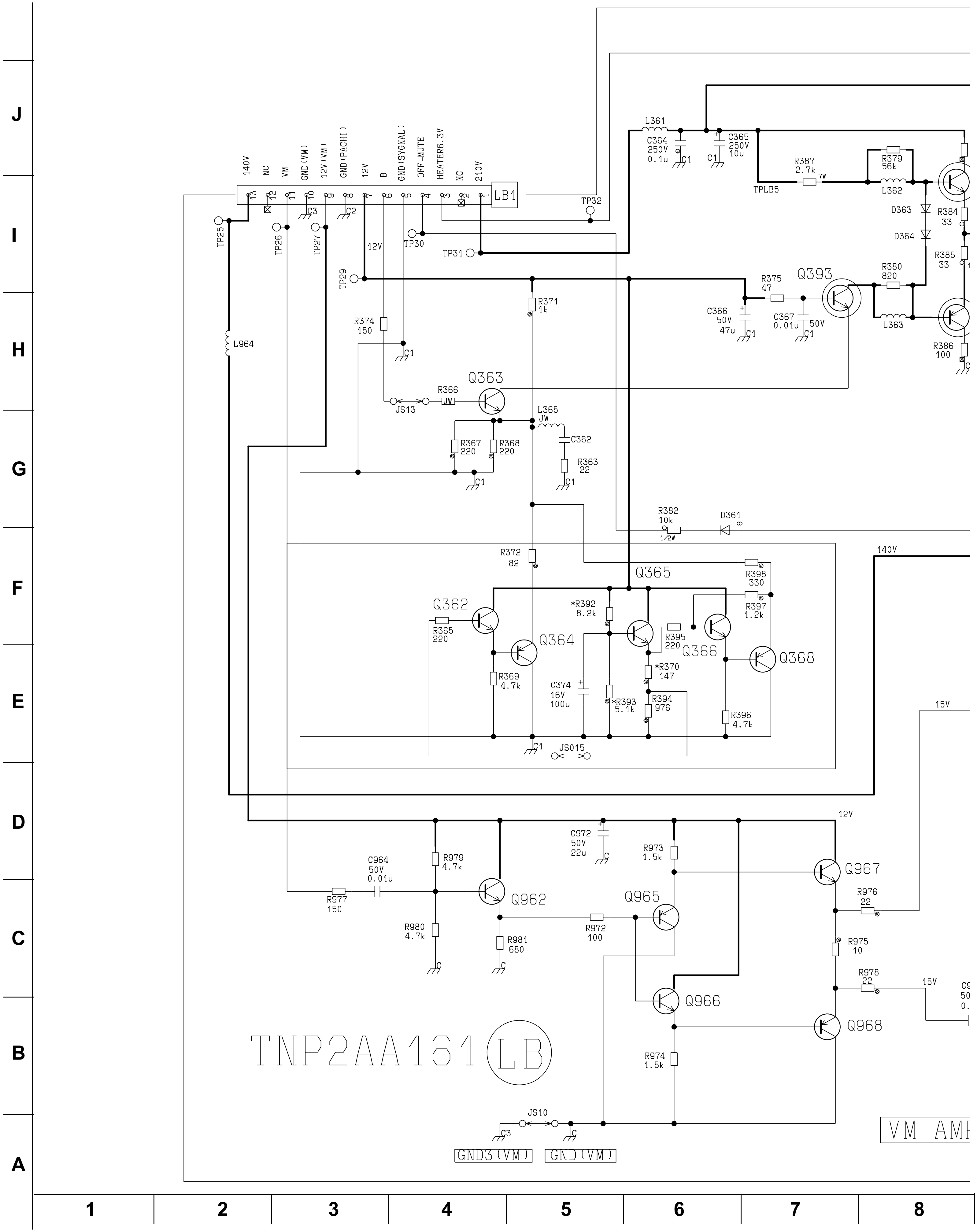
TPH08
TPH10
D3328
D3325
D3320
D3303
D3334
D3305
D3332
L
R
C3333
R3302
C3364
R3303
C3337
R3307
D3335
C3362
TPH14
TPH16
C3334
C3338
D3310
R3327
C3360
C3363
D3336
C3331
R3301
D3302
R3305
C3335
C3332
C3336
C3361
R3328
D3301
TPH13
D3309
TPH15
JS3328
JS3329
JS3330
L3304
L3303
TPH05
TPH04
JS3325
JS3326
JS3327
TNP2AA174
SEE REVERSE FOR ORDER NO.
H 1
PbF


J
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140V
NC
VM
GND(VM)
12V(VM)
GND(PACHI)
12V
B
GND(SYGNAL)
OFF-MUTE
HEATER6.3V
NC
210V
13
12
11
10
9
8
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5
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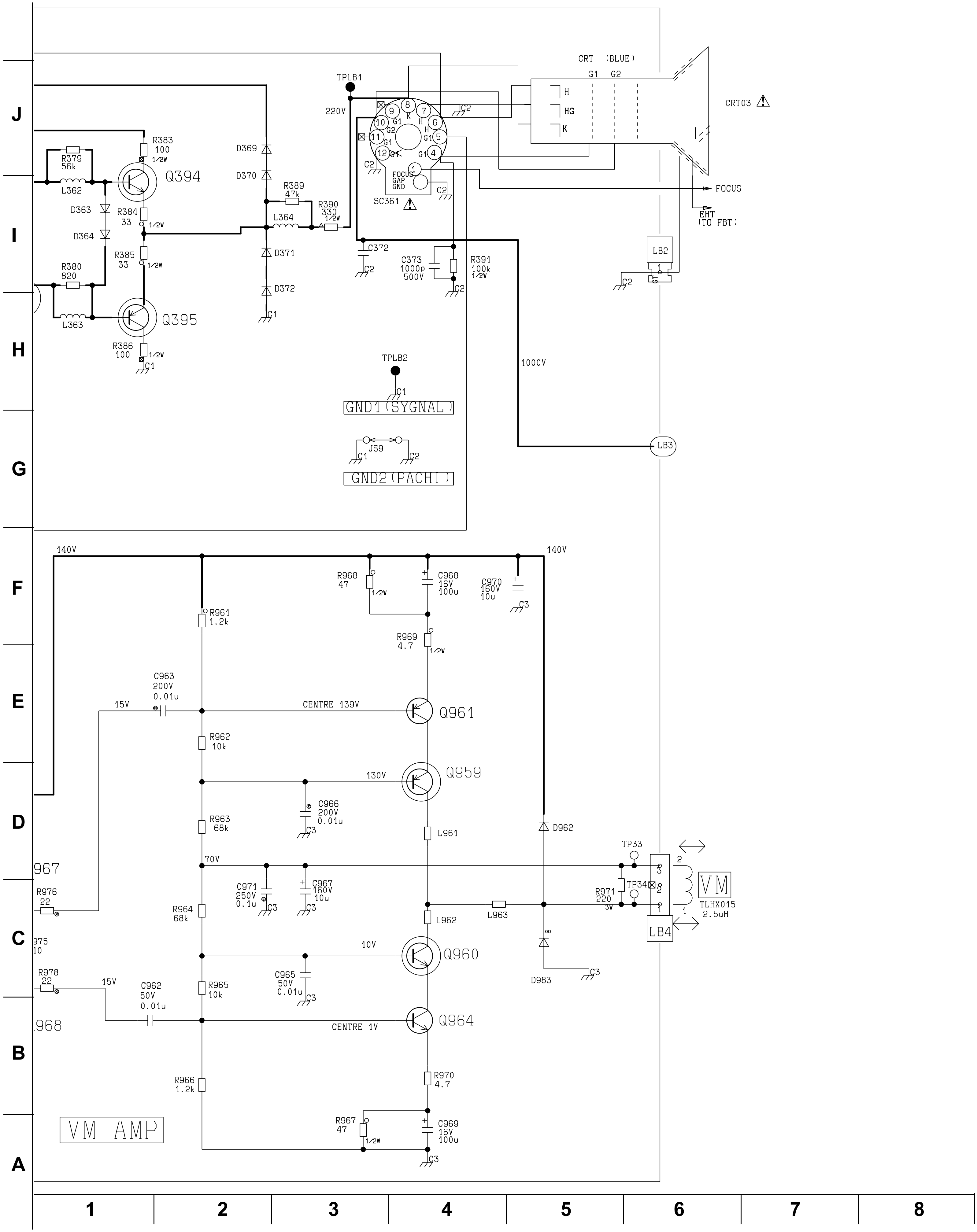
3
2
1
LB1
C3
C2
TP25
TP26
TP27
TP29
TP30
TP31
TP32
12V
L361
C364
250V
0.1u
C1
C365
250V
10u
C1
R387
2.7k
7W
TPLB5
R379
56k
L362
D363
D364
R384
33
R385
33
Q393
R375
47
R380
820
L363
C366
50V
47u
C1
C367
0.01u
50V
C1
R386
100
R371
1k
R374
150
C1
L964
Q363
R366
JW
JS13
L365
JW
C362
R367
220
R368
220
R363
22
C1
C1
R382
10k
1/2W
D361
140V
R372
82
Q365
R398
330
Q362
*R392
8.2k
R397
1.2k
R365
220
Q364
R395
220
Q366
Q368
*R370
147
R369
4.7k
C374
16V
100u
*R393
5.1k
R394
976
R396
4.7k
C1
JS015
15V
12V
C972
50V
22u
C
R973
1.5k
Q967
C964
50V
0.01u
R979
4.7k
Q962
Q965
R976
22
R977
150
R980
4.7k
R981
680
R972
100
R975
10
C
C
R978
22
15V
C9
50
0.
Q966
Q968
TNP2AA161
LB
R974
1.5k
JS10
C3
C
GND3(VM)
GND(VM)
VM AMP


CRT (BLUE)
G1 G2
H
HG
K
CRT03 ⚠
TPLB1
220V
SC361 ⚠
FOCUS
GAP
GND
C2
FOCUS
EHT (TO FBT)
LB2
LB3
LB4
1000V
C372
C373 1000p 500V
R391 100k 1/2W
R383 100 1/2W
R379 56k
L362
Q394
D363
D364
R384 33 1/2W
R385 33 1/2W
R380 820
L363
Q395
R386 100 1/2W
D369
D370
R389 47k
L364
R390 330 1/2W
D371
D372
C1
TPLB2
GND1(SYGNAL)
JS9
GND2(PACHI)
140V
R968 47 1/2W
C968 16V 100u
C970 160V 10u
C3
R961 1.2k
R969 4.7 1/2W
C963 200V 0.01u
15V
CENTRE 139V
Q961
R962 10k
130V
Q959
C966 200V 0.01u
R963 68k
L961
D962
70V
TP33
TP34
C971 250V 0.1u
C967 160V 10u
R971 220 3W
VM
TLHX015 2.5uH
R964 68k
L962
L963
D983
10V
Q960
C965 50V 0.01u
R965 10k
C962 50V 0.01u
CENTRE 1V
Q964
R970 4.7
R966 1.2k
R967 47 1/2W
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R976 22
R978 22
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968
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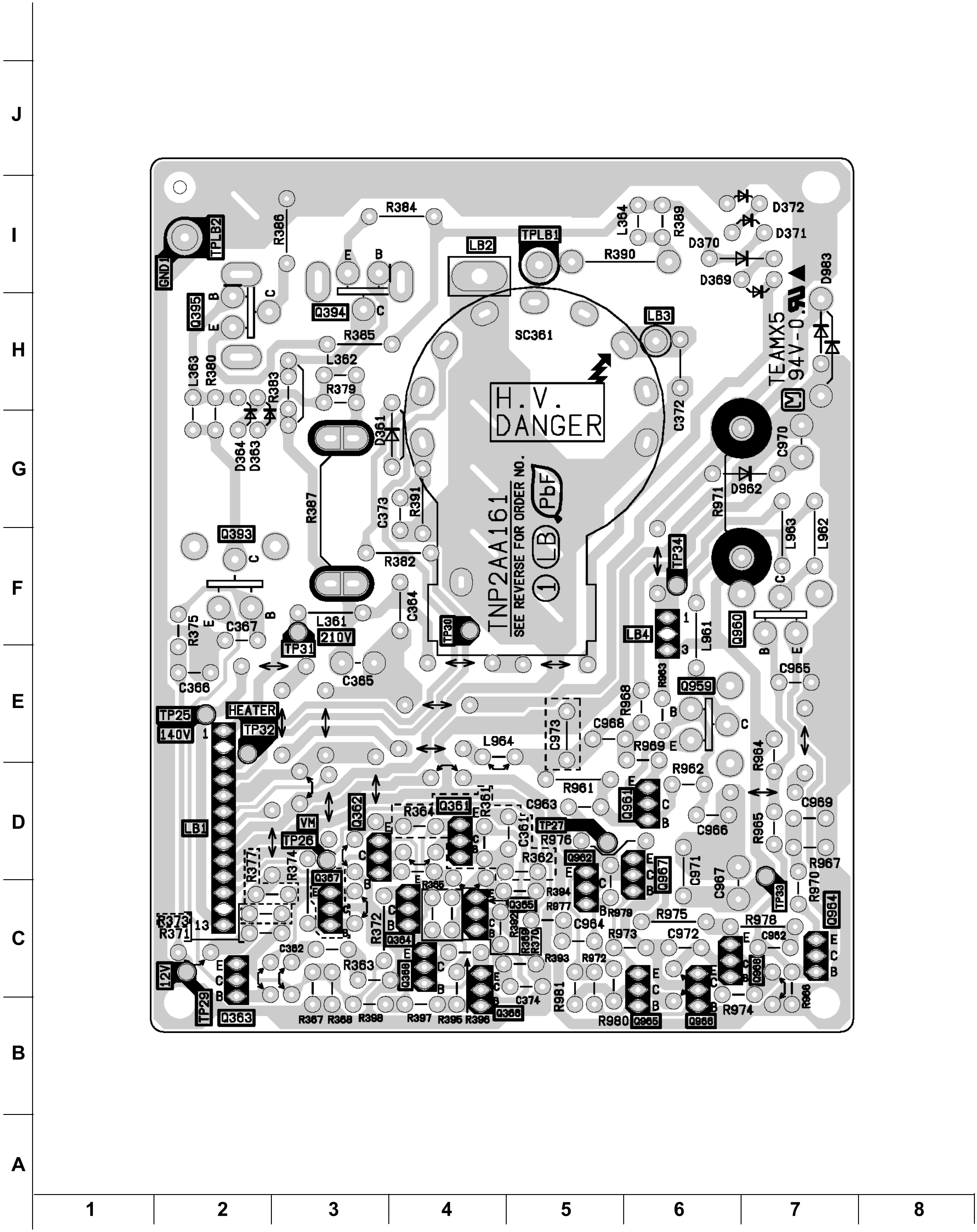
J
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GND1
TPLB2
R386
R384
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Q394
Q395
LB2
TPLB1
R390
L364
R389
D372
D371
D370
D369
D983
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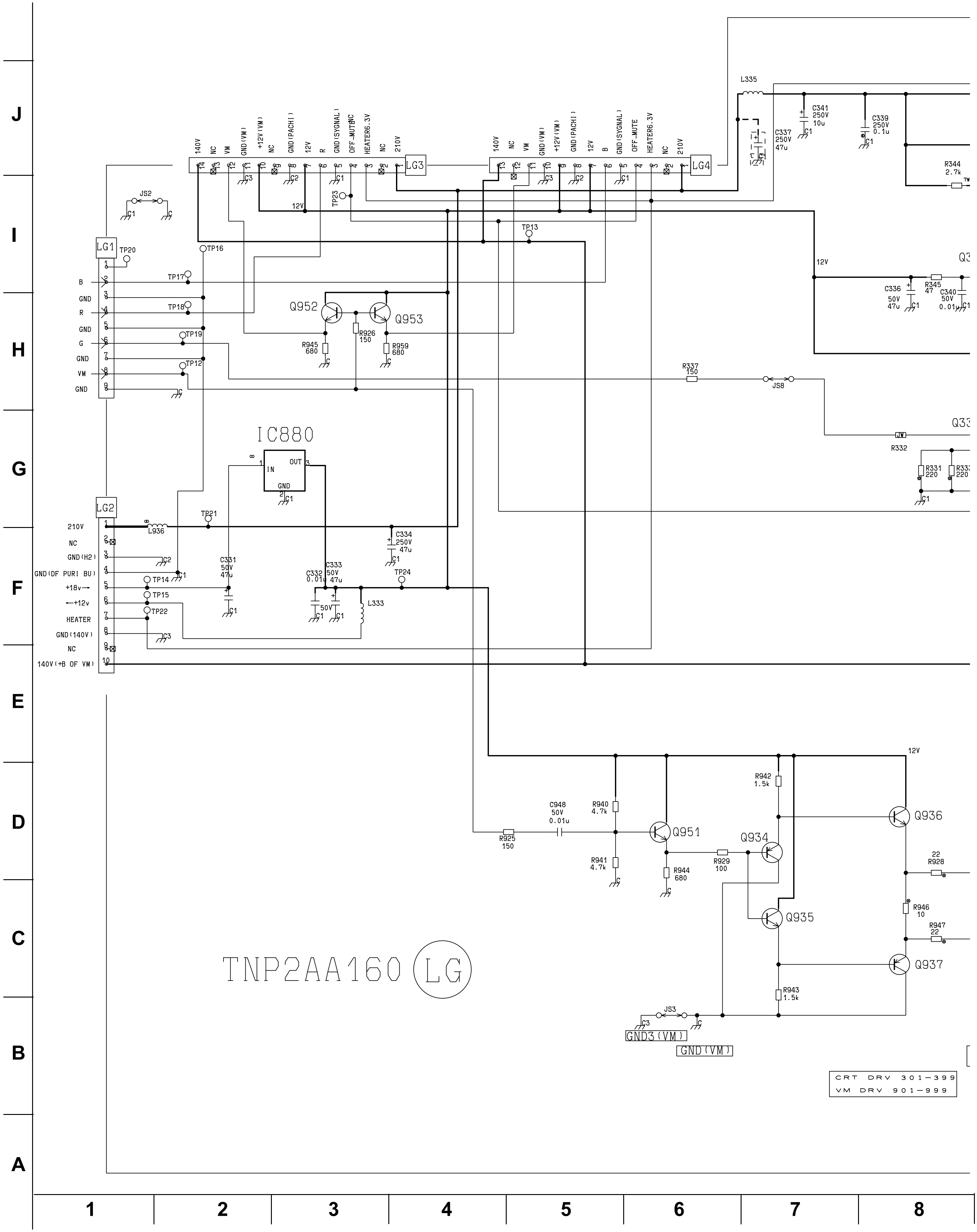
L363
R380
R383
R379
D364
D363
D361
H.V.
DANGER
C372
TEAMX5
94V-0
C970
D962
R971
L963
L962
R387
C373
R391
Q393
R382
TNP2AA161
SEE REVERSE FOR ORDER NO.
1
LB
PbF
TP34
C364
L361
210V
R375
C367
TP31
TP30
LB4
L961
Q960
3
C366
C365
C965
R963
Q959
R968
TP25
HEATER
140V
TP32
C968
C973
R969
L964
R964
R962
R961
C963
Q961
C969
LB1
Q362
R364
Q361
R361
C361
TP27
R976
C966
R965
VM
TP26
R377
R374
Q367
R362
Q962
Q967
C971
C967
TP33
R967
R970
Q964
R365
R394
R977
Q365
R979
R975
R978
R373
R371
13
R372
Q364
C964
R392
R369
R370
R973
C972
C962
12V
TP29
Q363
C382
R363
Q368
R393
R972
Q968
R981
R974
R966
C374
R367
R368
R398
R397
R395
R396
Q366
R980
Q965
Q966

LB-PCB TNP2AA161


J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
LG1
LG2
LG3
LG4
B
GND
R
GND
G
GND
VM
GND
TP20
TP16
TP17
TP18
TP19
TP12
JS2
140V
NC
VM
GND(VM)
+12V(VM)
NC
GND(PACHI)
12V
R
GND(SYGNAL)
OFF_MUTE
NC
HEATER6.3V
NC
210V
140V
NC
VM
GND(VM)
+12V(VM)
GND(PACHI)
12V
B
GND(SYGNAL)
OFF_MUTE
HEATER6.3V
NC
210V
12V
TP23
TP13
Q952
Q953
R926 150
R945 680
R959 680
IC880
IN
OUT
GND
210V
NC
GND(H2)
GND(DF PURI BU)
+18v→
←+12v
HEATER
GND(140V)
NC
140V(+B OF VM)
L936
TP21
TP14
TP15
TP22
C331 50V 47u
C332 0.01u
C333 50V 47u
50V
L333
C334 250V 47u
TP24
L335
C341 250V 10u
C339 250V 0.1u
C337 250V 47u
R344 2.7k 7W
12V
Q3
C336 50V 47u
R345 47
C340 50V 0.01u
R337 150
JS8
Q33
R332
JW
R331 220
R333 220
12V
C948 50V 0.01u
R925 150
R940 4.7k
R941 4.7k
Q951
R944 680
R929 100
Q934
R942 1.5k
Q936
Q935
R928 22
R946 10
R947 22
Q937
R943 1.5k
JS3
GND3(VM)
GND(VM)
TNP2AA160 (LG)
CRT DRV 301-399
VM DRV 901-999